UM0174
User manual

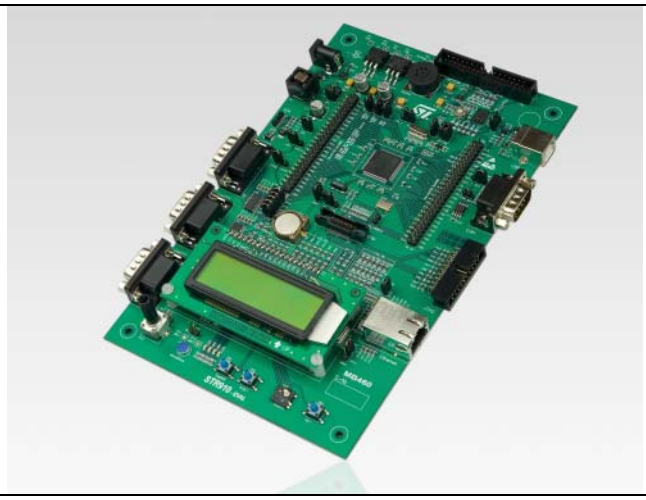
STR910-EVAL evaluation board

Introduction

The **STR910 evaluation board** (STR910-EVAL) is a complete development platform for the STMicroelectronic's ARM® core-based STR91xF. Based on the ARM966ES core, the STR91xF includes Pre-fetch Queue and Branch cache, full speed USB 2.0 compatible port, Ethernet 100/10 interface, Embedded MAC, CAN2.0B compliant interface, a 2 Mbyte dual bank Flash memory, a 96 Kbyte SRAM and many peripherals.

The STR910-EVAL board includes an STR910F microcontroller, pre-loaded demonstration software and a full range of hardware features to help you evaluate device peripherals (such as motor control, IrDA, USB, Ethernet, CAN) and develop your own applications. Extension headers make it possible to easily connect a daughter board or wrapping board for your specific application.

Figure 1. STR910-EVAL evaluation board



Features

- Three 5V power supply options: jack, USB connection or a daughter board
- RTC with tamper detection
- Audio play and record
- Three RS232 connectors with support of full modem control on one connector
- Infrared Data Access (IrDA)
- USB 2.0 compliant with full-speed (12 Mb/s) data transmission
- CAN 2.0B connection
- Inductor motor control connector with 6 PWM output, emergency stop and tachometer input

- IEEE-802.3-2002 compliant Ethernet connection
- Debug support via 20-pin JTAG connector
- 38-pin ETM connector for optional trace module
- Dot-matrix LCD module
- Joystick with 4-direction control and selector
- Extension connectors for daughter board or wrapping board

About the user manuals...

This user manual provides information about using your STR910-EVAL and its hardware features. This product includes the **STR912FAW47X6** microcontroller with a 2 Mbyte internal Flash memory. Earlier versions of the product include the **STR912FAW44X6** microcontroller with a 512 Kbyte internal Flash memory.

For additional information about supporting software and tools, please refer to the STR9 microcontroller families web page on *www.st.com*.

Ordering information

To order the STR910 evaluation board, use the order code **STR910-EVAL**.

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1 Getting started

Your **STR910-EVAL** is designed with a full range of hardware features that will help you rapidly evaluate microcontroller peripherals and develop your own applications. Descriptions of hardware features and configurations are provided in *Section 2 on page 8*.

Demonstration software is preloaded in the board's flash memory for easy demonstration of device peripherals in stand-alone mode. For more information refer to the demonstration software getting started.

Your STR910-EVAL is also designed for use as an application development platform and reference design, and supports connection to a full range of in-circuit debugging tools and integrated development environments.

To start using your STR910-EVAL evaluation board for application development, you will have to set up your development tools and connect to the STR91xF.

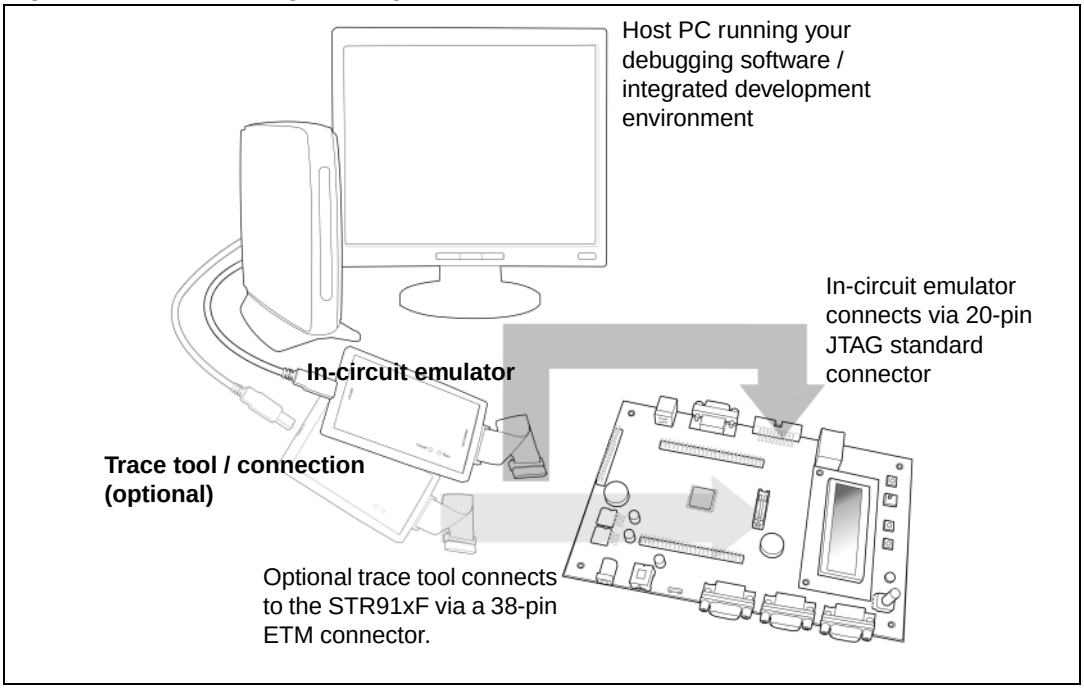
1. Connect to your STR910-EVAL via the 20-pin JTAG connector.

   A 38-pin ETM connector is also provided, allowing you to connect to and use your microcontroller's Embedded Trace Macrocell during debugging. For additional configuration information, see *Section 2.12 on page 17*
2. Power up the evaluation board.

   The board can be powered by 5V from either the jack for external power supply, USB connector, or a daughter board. For additional configuration information, see *Section 2.1 on page 10*.
3. Connect to the device from the debugging software on your host PC.

   The BCD files, FME file and installation instructions that you will need to update your debugging software are available for free download at the STMicroelectronics microcontrollers support site on www.st.com.

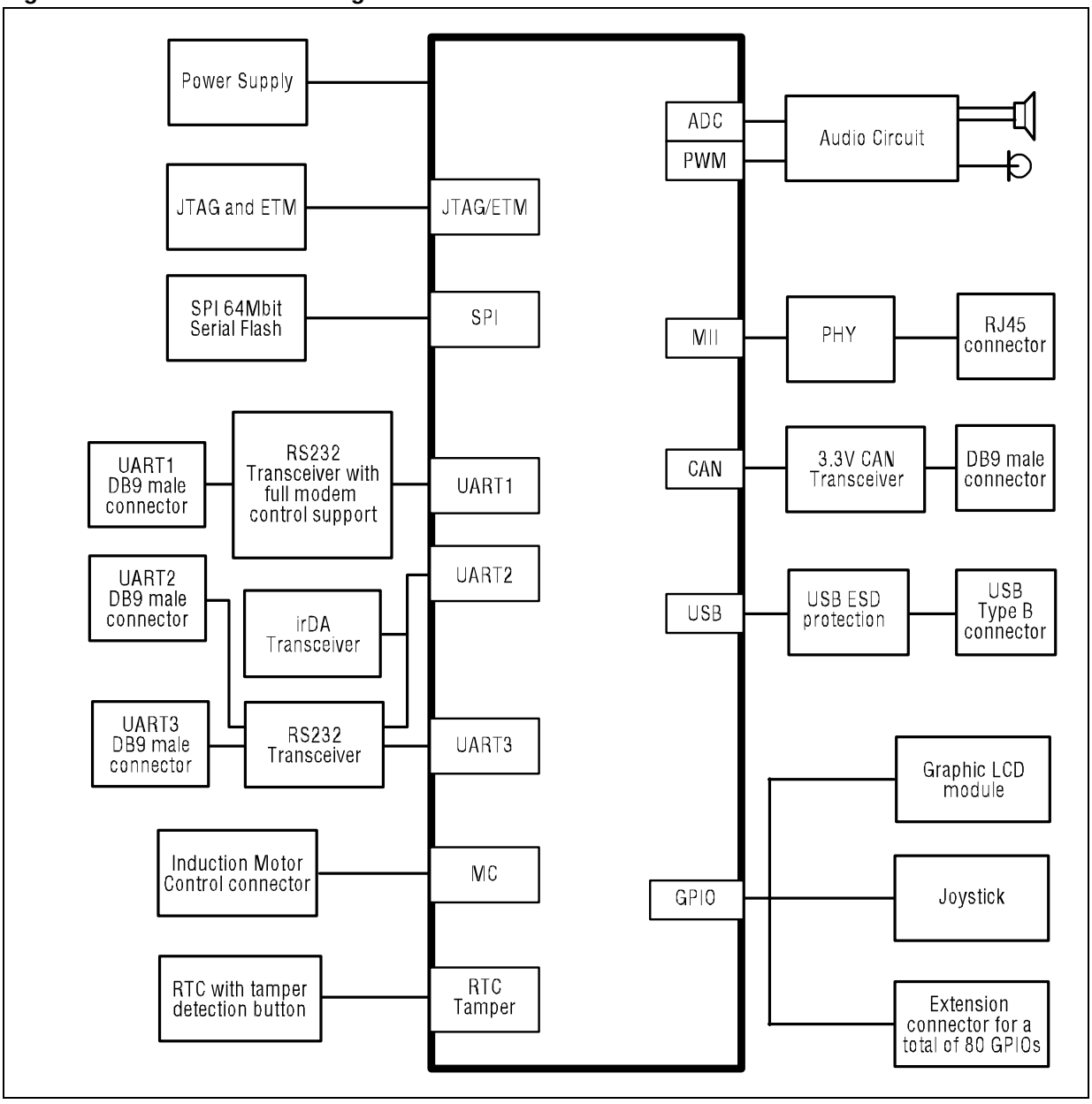
Figure 2. Connecting development tools


Host PC running your debugging software / integrated development environment
In-circuit emulator connects via 20-pin JTAG standard connector
In-circuit emulator
Trace tool / connection (optional)
Optional trace tool connects to the STR91xF via a 38-pin ETM connector.

2 Hardware layout and configuration

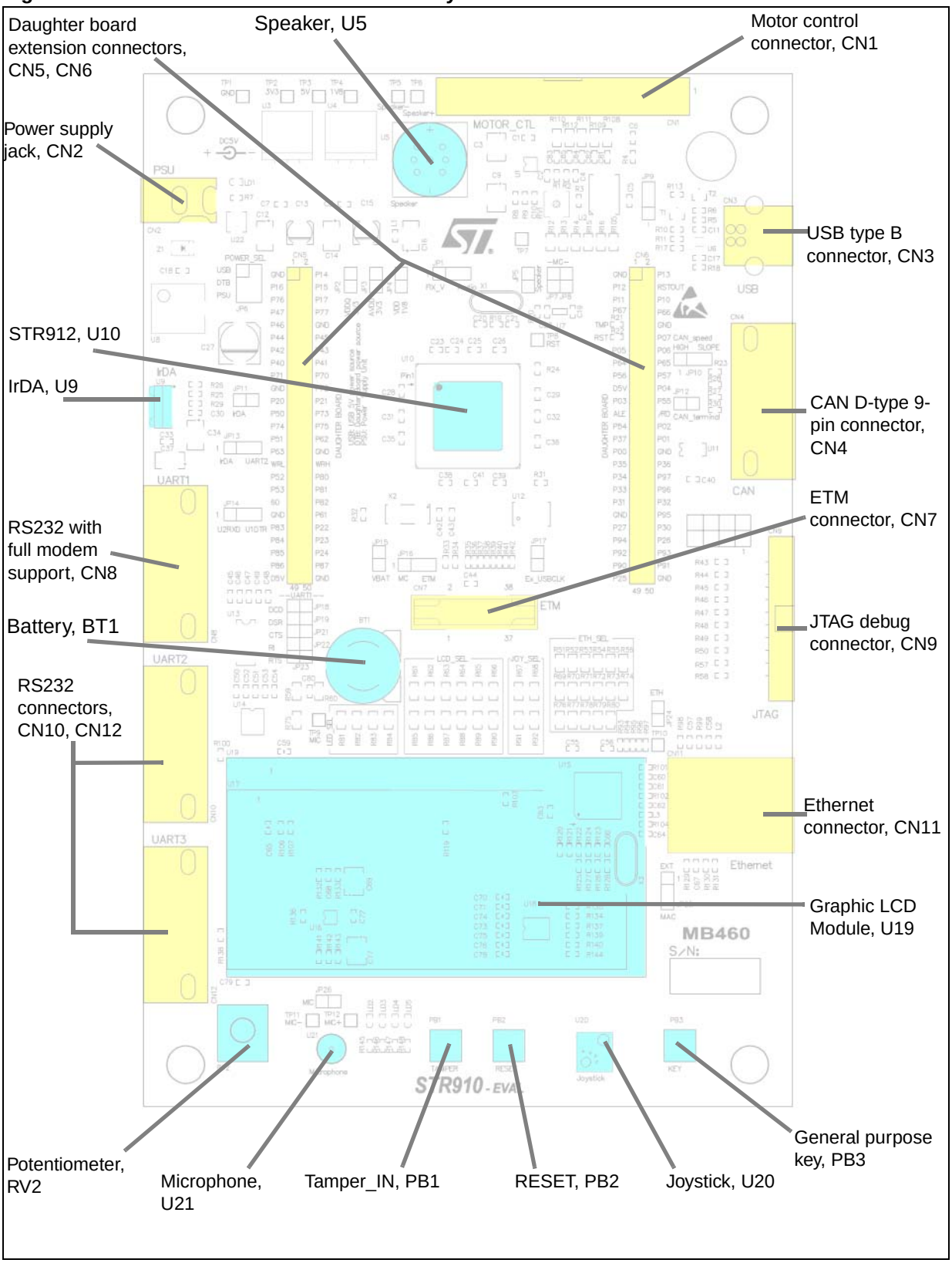
The STR910-EVAL is designed around the **STR912FAW47X6** ARM966E-S in 128-pin LQFP package. The hardware block diagram of the STR910-EVAL (*Figure 2*) illustrates the layout of the board relative to the STR91xF peripherals and *Figure 4* will help you locate these features on the actual evaluation board.

Figure 3. Hardware block diagram



Peripheral implementation on the STR910-EVAL board requires the use of alternate pin functions supported by the **STR912FAW47X6**. A table of alternate pin functions used in this design is provided in *Appendix A*.

Figure 4. STR910-EVAL evaluation board layout



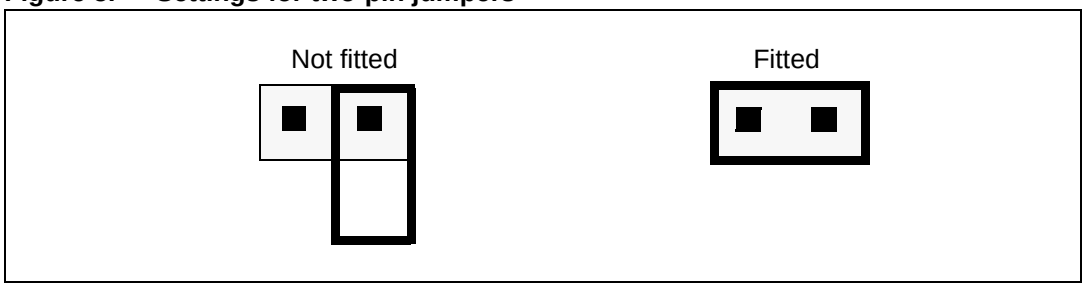
The following sections provide jumper settings for configuring your STR910-EVAL evaluation board and peripherals, including:

- *Power supply*
- *Clock source*
- *Reset source*
- *Ethernet*
- *Audio features*
- *Serial Flash*
- *CAN*
- *RS232 and IrDA*
- *Motor control*
- *RTC and tamper*
- *USB*
- *Development and debugging tool support*
- *Display and input devices*

Two types of jumpers are used on the STR910-EVAL evaluation board:

- 3-pin jumpers with two possible positions, for which settings are presented in schematics in the following sections
- 2-pin jumpers with two possible settings: **Fitted**– the circuit is closed, and **Not fitted**– the circuit is open (see *Figure 5*)

Figure 5. Settings for two-pin jumpers



2.1 Power supply

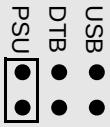
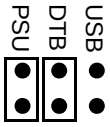
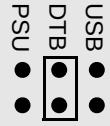
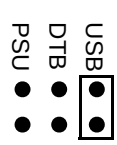
STR910-EVAL evaluation board is designed to be powered by a 5V DC power supply. It is possible to configure the evaluation board to use any of the following three sources for the power supply:

- 5V DC power adapter connected to the **power supply jack** (CN2, or PSU for Power Supply Unit on the silk screen).
- 5V DC power with 500mA limitation via the **USB type-B connector** (CN3, or USB on the silk screen).
- 5V DC power from the **daughter board extension connectors** (CN5 and CN6, DTB for Daughter Board on the silk-screen).

There is also a 3V button battery, which can be used as a backup power supply for both the RTC and the internal RAM of the STR91xF microcontroller.

The power supply is configured by setting the related jumpers, **JP2**, **JP3**, **JP4**, **JP6** and **JP15** as described in *Table 1*.

Table 1. Power jumpers

Jumper	Description
JP6	Selects one of the three possible 5V DC power supply sources:
	For **Power supply jack** (CN2) to the STR910-EVAL only, JP6 is set as shown to the right: (Default setting) 
	For **Power supply jack** (CN2) to both STR910-EVAL evaluation board and a daughter board connected to CN5 and CN6, JP6 is set as shown to the right: 
	For power supply from the **daughter board connectors** (CN5 and CN6), JP6 is set as shown to the right: 
	For power supply from **USB** (CN3), JP6 is set as shown to the right: If a daughter board is connected on CN5 and CN6, it must not have its own power supply connected. The USB connection supplies power to both the STR910-EVAL evaluation board and the daughter board. 
JP2	Enables consumption measurement of 3.3V STR91xF I/O power supply (VDDQ). Default setting: Fitted
JP4	Enables consumption measurement of 1.8V STR91xF CPU core power supply. Default setting: Fitted
JP3	Enables consumption measurement of STR91xF analog power supply (AVDD). Default setting: Fitted
JP15	Enables consumption measurement of STR91xF backup power supply (VBAT). Default setting: Fitted

The LD1 LED is lit when the STR910-EVAL evaluation board is powered correctly.

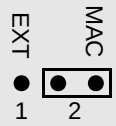
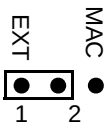
2.2 Clock source

Four clock sources are available on the STR910-EVAL evaluation board for the microcontroller, USB, RTC and Ethernet PHY transceiver.

- **X1**– 25MHz crystal for STR91xF microcontroller
- **X2**– 32KHz crystal for embedded RTC
- **X3**– 25MHz crystal for Ethernet PHY transceiver U15
- **U12**– 48MHz oscillator for USB

USB and Ethernet PHY are also able to run using the clock from the STR91xF. The clock system can be configured by setting the jumpers **JP25** and **JP17** as described in *Table 2*.

Table 2. Clock jumpers

Jumper	Description
JP25	Sets the clock source for Ethernet PHY to **X3** or **STR91xF**. To use the 25MHz clock from the **STR91xF** P52, set JP25 as shown on the right: (Default setting)  To use the 25MHz clock from **X3**, set JP25 as shown on the right: 
JP17	Enables the external USB 48MHz clock source. To use an **external oscillator** via P27 of the STR91xF for the USB clock input, JP17 is fitted. To use the internal clock of the **STR91xF**, JP17 is not fitted. In this case P27 can be used for an alternate function. Default setting: Not fitted

2.3 Reset source

The reset signal of STR910-EVAL evaluation board is low active.

The reset sources include:

- Power On Reset from STM1001 (U7)
- Reset button (PB2)
- Debugging tools via the CN9 or CN7 connector
- Daughter board via the CN6 connector

2.4 Ethernet

The STR910-EVAL supports IEEE-802.3-2002 compliant Ethernet communication via the MII interface PHY transceiver– STE100P with PHY address 10101b and integrated RJ45 connector with embedded transformer. **JP24** enables/disables Ethernet support.

Table 3. Ethernet jumpers

Jumper	Description
JP24	PHY transceiver STE100P is in Power Down mode when JP24 is not fitted. Default setting: Fitted

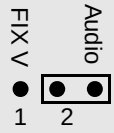
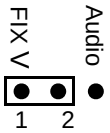
Two embedded LEDs (yellow and green) for the RJ45 connector show current status of Ethernet connection:

- **Yellow LED** – blinking indicates transmission or reception via Ethernet
- **Green LED** – is lit when a good link test has been detected

2.5 Audio features

STR910-EVAL evaluation board supports both audio recording and playback. This can be disabled or enabled by setting of jumpers **JP5** and **JP26**. Audio volume can be adjusted using the potentiometer RV1.

Table 4. Audio jumpers

Jumper	Description
JP5	Audio power amplifier TS4871 is forced into standby mode when JP5 (SPEAKER on the silk-screen) is not fitted. Default setting: Fitted
JP26	Microphone pre-amplifier MAX4061 is forced into shutdown mode when JP26 (MIC on the silk-screen) is fitted. Default setting: Not fitted
JP1	Audio play circuit is connected to P46 of STR91xF when JP1 (FIX_V & Audio on the silk-screen) is set as shown on the right: (Default setting) 
	Adjustable analog signal from RV2 is connected to P46 of the STR91xF when JP1 is set as shown on the right: 

2.6 Serial Flash

A 64Mbit SPI interface Flash is available on the STR910-EVAL evaluation board.

2.7 CAN

The STR910-EVAL evaluation board supports CAN2.0B compliant bus communication based on the 3.3V CAN transceiver. Both high-speed mode and slope-control mode are available and can be selected by setting **JP10**.

Table 5. CAN jumpers

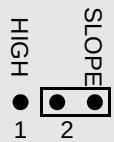
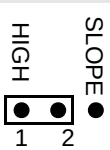
Jumper	Description
JP10	CAN transceiver functions in slope-control mode when JP10 (HIGH or SLOPE on silk-screen) is set as shown to the right: 
	CAN transceiver functions in high-speed mode when JP10 is set as shown on the right: (Default setting) 

Table 5. CAN jumpers (continued)

Jumper	Description
JP12	CAN terminal resistor is enabled when JP12 (CAN terminal) is fitted. Default setting: Not fitted

2.8 RS232 and IrDA

Three channels for RS232 communication are available on the STR910-EVAL board.

Two channels UART2 and UART3, use the RS232 transceiver U14 and two male D-type 9-pin connectors CN10 and CN12. IrDA communication is supported as a multiplex function on UART2. You can activate the IrDA transceiver and enable IrDA on UART2 by setting jumpers **JP13** and **JP11** as indicated in *Table 6*.

UART1 uses the RS232 transceiver U13 with full modem control support and the male D-type 9-pin connector CN8. For this feature, the DTR signal is multiplexed using the same pin that is otherwise used for the RXD signal on UART2. You can select between the UART2 RXD and UART1 DTR signal by setting **JP14** as indicated in *Table 6*.

Table 6. RS232 and IrDA jumpers

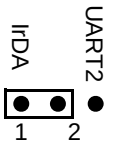
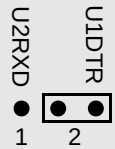
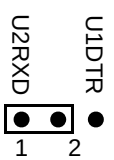
Jumper	Description
JP13	UART2 RXD signal is connected to RS232 transceiver when JP13 is set as shown on the right: (default setting)
	UART2 RXD signal will be connected to IrDA transceiver when JP13 is set as shown on the right: 
JP14	Allows selection of either UART2 or UART1 with full modem control support.
	UART1 DTR signal is used when JP14 is set as shown on the right: 
	UART2 RXD signal is used when JP14 is set as shown on the right: 
JP11	Shuts down IrDA transceiver. IrDA is enabled when JP11 is fitted while IrDA is disabled when JP11 is Not fitted. Default setting: Fitted

Table 6. RS232 and IrDA jumpers (continued)

Jumper	Description
Jumpers JP18, JP19, JP21, JP22 and JP23 enable signals for UART1 with full modem control	
JP18	UART1 **DCD signal** is enabled when JP18 is fitted. Default setting: Fitted
JP19	UART1 **DSR signal** is enabled when JP19 is fitted. Default setting: Fitted
JP21	UART1 **CTS signal** is enabled when JP21 is fitted. Default setting: Fitted
JP22	UART1 **RI signal** is enabled when JP22 is fitted. Default setting: Fitted
JP23	UART1 **RTS signal** is enabled when JP23 is fitted. Default setting: Fitted

2.9 Motor control

STR910-EVAL board supports induction motor control via a 34-pin connector CN1, which provides all required control and feedback signals to and from a motor power-drive board. Available signals on this connector include emergency stop, motor speed, 3-phase motor current, bus voltage, Heatsink temperature from the motor drive board and 6 channels of PWM control signals going to the motor drive circuit.

Emergency stop, motor current sampling and motor speed detection are enabled by setting jumpers **JP16**, **JP7** and **JP8**.

The potentiometer (RV2) can be used to control motor speed when **JP1** is configured to connect RV2 to P46 of the STR91xF. See *Table 4 on page 13*.

Table 7. Motor control jumpers

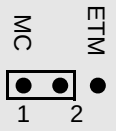
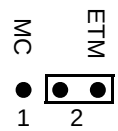
Jumper	Description
JP16	JP16 enables the emergency stop function on P67 of the motor control connector CN1. P67 of the STR91xF is shared by both motor control and ETM trace support.
	P67 is used for motor control emergency stop detection when JP16 (MC or ETM on silk-screen) is set as shown on the right: (default setting) 
	P67 is used for external trigger of ETM tracing when JP16 is set as shown on the right: 
JP7	Motor current sampling operation is enabled when JP7 is fitted (P40 connected to P43). The I/O pins P40 and P43 are disconnected and can be used by a daughter board when JP7 is not fitted. Default setting: Fitted

Table 7. Motor control jumpers (continued)

Jumper	Description
JP8	STR91xF I/O pin P25 is used as external clock of timer for motor control when JP8 is fitted. P25 can be used by a daughter board when JP8 is not fitted. Default setting: Fitted

Note: When using the motor control connector, ensure that JP9 is set to allow the use of P0.1 on the STR910F for motor control. JP9 can be configured to use P0.1 for the USB peripheral. See Table 8 on page 16.

2.10 RTC and tamper

A 32KHz crystal X2 is available for the embedded RTC inside the STR91xF. The push button PB1 can be used to simulate a tamper event on the RTC.

2.11 USB

The STR910-EVAL evaluation board offers USB 2.0 compliant communication via a USB type-B connector (CN3) with full-speed (12Mb/s) data transfer. The evaluation board and daughter board can be powered from this USB connection at 5V DC with a 500mA current limitation.

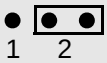
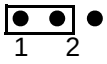
Two clock sources are available for USB:

- PLL generated clock from the STR91xF
- External oscillator U12

Clock source is selected by setting **JP17**. Refer to *Table 2: Clock jumpers on page 12* for configuration details.

The unplugging of hardware from the USB connector (CN3) can be simulated by your application software. USB hardware disconnect simulation is enabled by configuring the jumper **JP9**, as described in *Table 8*.

Table 8. USB jumpers

Jumper	Description
JP9	JP9 can be used to enable USB hardware disconnect simulation using P0.1 on the STR910F. P0.1 of the STR91xF can be used either for Motor Control or USB.
	USB hardware disconnect simulation is enabled and P0.1 of the STR910F is used by the USB peripheral when JP9 is set as shown to the right: In this case, the USB pull up resistor (R10) is connected to pin 3 of the USB connector. 
	USB hardware disconnect simulation is disabled, and P0.1 of the STR910F is used by the Motor Control connector (C1) when JP9 is set as shown to the right: (Default setting) 

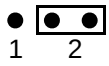
2.12 Development and debugging tool support

The STR910-EVAL evaluation board supports connection to both In-Circuit Emulators (ICE) via a 20-pin standard JTAG interface and Trace tools via a 38-pin Embedded Trace Macrocell (ETM) interface.

To enable the ETM trace feature, some alternate circuit functions have to be disconnected by setting the jumpers listed in *Table 9*. Motor control, UART1 full modem control support and USB external 48MHz clock use STR91xF I/O pins that are required for the ETM trace connection on CN7. These features will be restricted when ETM trace is used. The evaluation board can not be connected to a motor control drive board on connector CN1.

To ensure the integrity of high-speed signals on the ETM trace connections, each ETM signal should have a single point-to-point connection from STR91xF microcontroller to the 38-pin ETM connector. Stub tracks ("dead-end" extensions to the signal track) should be eliminated. If you encounter problems when using ETM connector, you can remove the resistors indicated in *Table 9* to avoid stub and improve signal quality on the ETM connection.

Table 9. ETM trace configuration

Pin on CN7	Description	To disable alternate function	To avoid stub
6	TRACECLK	Disconnect motor power drive board connected to CN1	Remove R34
10	EXTTRIG	Keep JP16 set as shown below: 	No change
24	TRACEPKT[3]	JP22 is not fitted (UART1 RI signal is disabled)	Remove R35
26	TRACEPKT[2]	JP18 is not fitted (UART1 DCD signal is disabled)	Remove R36
28	TRACEPKT[1]	JP19 is not fitted (UART1 DSR signal is disabled)	Remove R37
30	TRACEPKT[0]	JP21 is not fitted (UART1 CTS signal is disabled)	Remove R38
32	TRACESYNC	JP17 is not fitted (external USB48MHz clock P27 source is disable)	Remove R39
34	PIPESTAT[2]	No	Remove R40
36	PIPESTAT[1]	JP8 is not fitted (Motor control Encoder A pin on CN1 connector is disabled)	Remove R41
38	PIPESTAT[0]	No	Remove R42

2.13 Display and input devices

32x122 pixel graphic LCD and 4 general purpose LED's (LD2, 3, 4, 5) are available as display devices. A 4-direction joystick with selection key and one general purpose button (PB3) are available as input devices.

STR910-EVAL also supports a second optional 2x16 character LCD that can be mounted on the U17 connector.

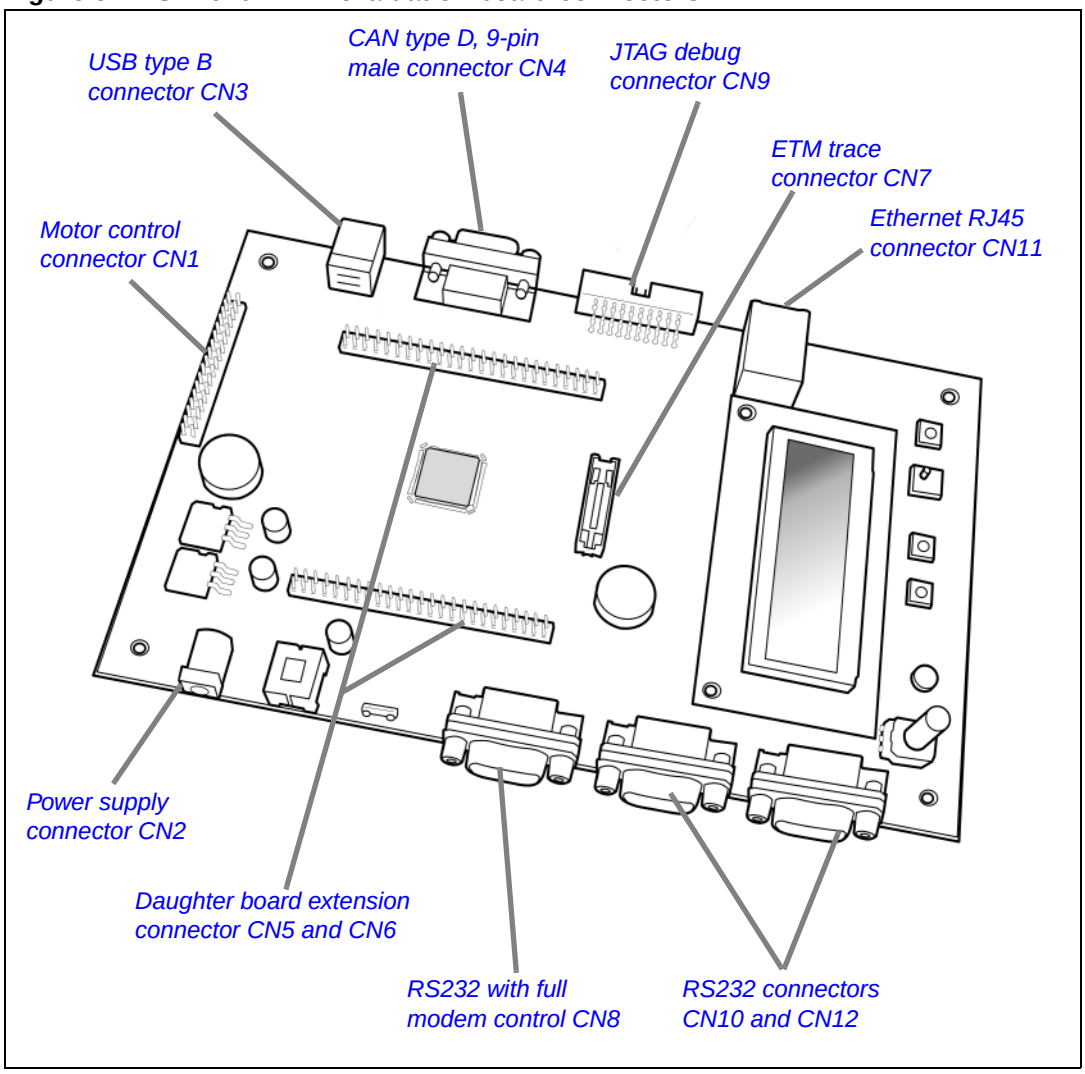
Table 10. LCD modules

Graphic LCD U19 (default)			Character LCD U17 (optional)		
Pin on U19	**Description**	**Pin on STR91xF**	**Pin on U17**	**Description**	**Pin on STR91xF**
1	GND	GND	**1**	GND	GND
2	VDD	3.3V	**2**	VDD	3.3V
3	VO		**3**	VO	
4	RS	P97	**4**	RS	P97
5	NC		**5**	RW	P96
6	E2	P95	**6**	E	P94
7	NC		**7**	DB0	P80
8	E1	P94	**8**	DB1	P81
9	RW	P96	**9**	DB2	P82
10	DB0	P80	**10**	DB3	P83
11	DB1	P81	**11**	DB4	P84
12	DB2	P82	**12**	DB5	P85
13	DB3	P83	**13**	DB6	P86
14	DB4	P84	**14**	DB7	P87
15	DB5	P85	**15**	A	+5V
16	DB6	P86	**16**	K	GND
17	DB7	P87			
18	RST	RESET#			
19	A	+5V			
20	K	GND			

3 Connectors

The following sections provide pin descriptions for the STR910-EVAL evaluation board connectors shown in *Figure 6*.

Figure 6. STR910-EVAL evaluation board connectors


USB type B connector CN3
CAN type D, 9-pin male connector CN4
JTAG debug connector CN9
ETM trace connector CN7
Ethernet RJ45 connector CN11
Motor control connector CN1
Power supply connector CN2
Daughter board extension connector CN5 and CN6
RS232 with full modem control CN8
RS232 connectors CN10 and CN12

3.1 Motor control connector CN1

Figure 7. Motor control connector (CN1, top view)

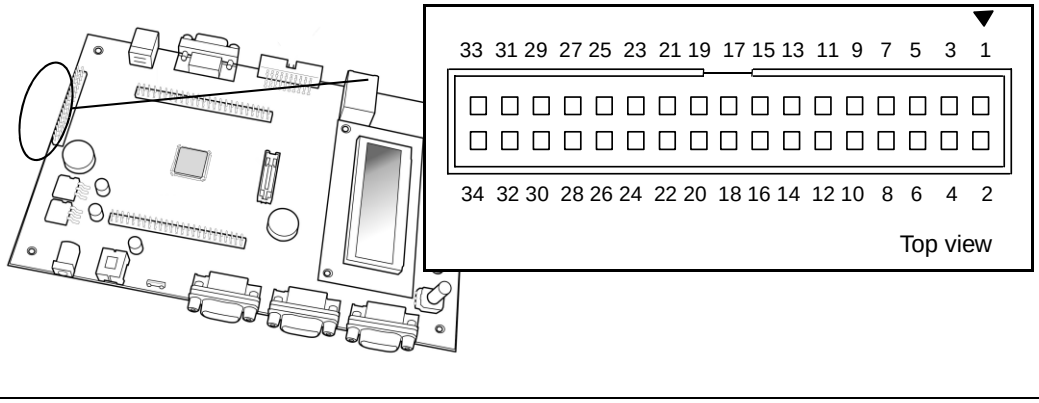


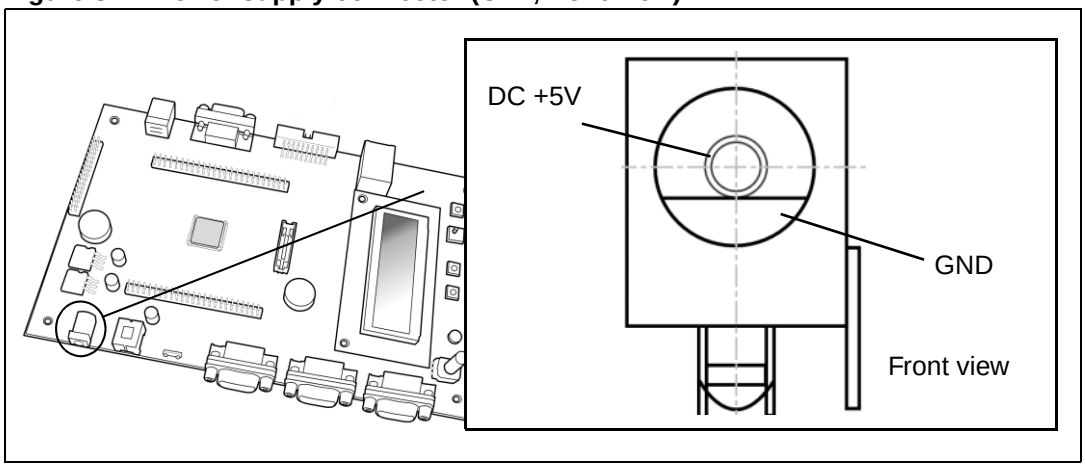
Table 11. Motor control connector (CN1)

Pin number	Description	Pin number	Description
1	EMERGENCY STOP	**2**	GND
3	PWM-UH	**4**	GND
5	PWM-UL	**6**	GND
7	PWM-VH	**8**	GND
9	PWM-VL	**10**	GND
11	PWM-WH	**12**	GND
13	PWM-WL	**14**	BUS VOLTAGE
15	PHASE A CURRENT	**16**	GND
17	PHASE B CURRENT	**18**	GND
19	PHASE C CURRENT	**20**	GND
21	NTC BYPASS RELAY	**22**	GND
23	DISSIPATIVE BRAKE PWM	**24**	GND
25	+5V power	**26**	Heatsink temperature
27	PFC SYNC	**28**	3.3V power
29	PFC PWM	**30**	GND
31	Encoder A	**32**	GND
33	Encoder B	**34**	Encoder index

3.2 Power supply connector CN2

Your STR910-EVAL evaluation board can be powered from a DC 5V power supply via the external power supply jack (CN2) shown in *Figure 8*. The central pin of CN2 must be positive. For power supply jumper configurations, refer to section *Section 2.1 on page 10*.

Figure 8. Power supply connector (CN2, front view)



3.3 USB type B connector CN3

Figure 9. USB type B connector (CN3, front view)

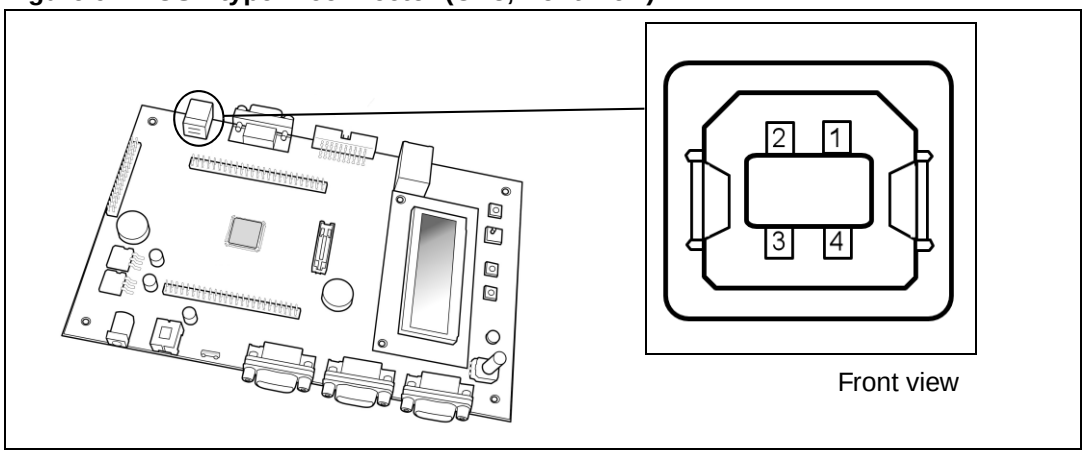


Table 12. USB type B connector (CN3)

Pin number	Description	Pin number	Description
1	VBUS (Power)	**4**	GND
2	DM	**5, 6**	Shield
3	DP		

3.4 CAN type D, 9-pin male connector CN4

Figure 10. CAN type D, 9-pin male connector (CN4, front view)

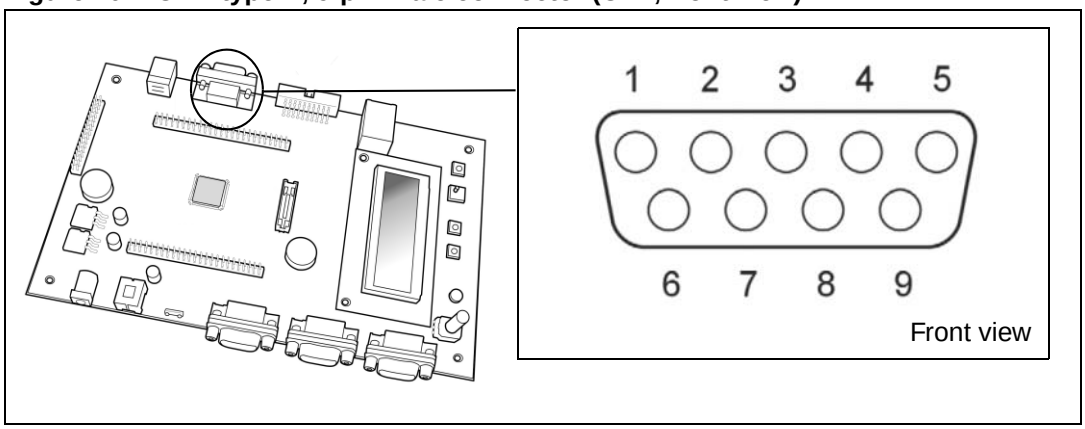


Table 13. CAN type D, male 9-pin male connector (CN4)

Pin number	Description	Pin number	Description
1, 4, 5	NC	**7**	CANH
2	CANL	**9**	CANV+ (3.3V)
3, 6, 8	GND		

3.5 ETM trace connector CN7

Figure 11. ETM trace connector (CN7, top view)

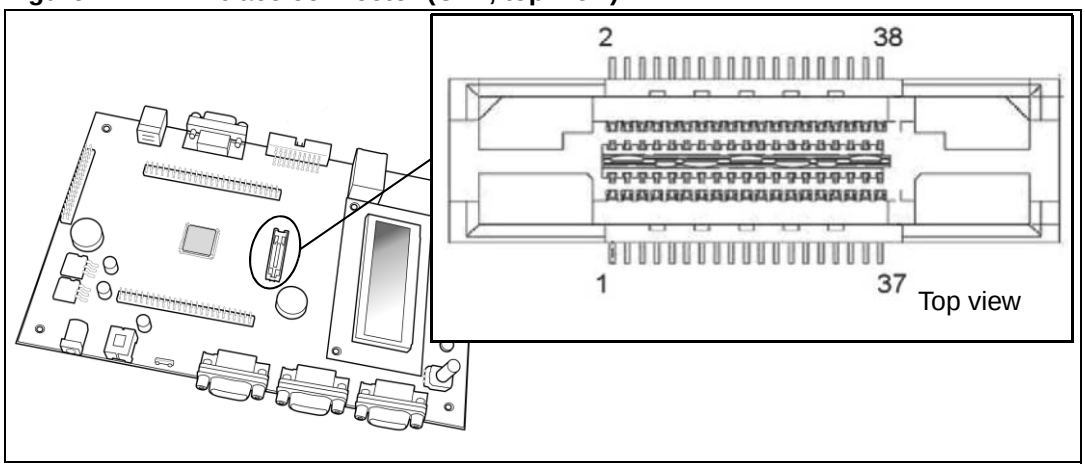


Table 14. ETM trace connector (CN7)

Pin number	Description	Pin number	Description
1, 2, 3, 4, 16, 18, 20, 22, 23, 25, 27, 29, 13, 33, 35, 37	Not Connected	17	TMS
5	GND	19	TDI

Table 14. ETM trace connector (CN7) (continued)

Pin number	Description	Pin number	Description
6	TRACECLK	21	TRST
7	DBGRQ	24	TRACEPKT[3]
8	DBGACK	26	TRACEPKT[2]
9	nSRST	28	TRACEPKT[1]
10	EXTTRIG	30	TRACEPKT[0]
11	TDO	32	
12	Vtref	34	PIPESTAT[2]
13	RTCK	36	PIPESTAT[1]
14	Vsupply	38	PIPESTAT[0]
15	TCK		

3.6 RS232 with full modem control CN8

Figure 12. RS232 connector (CN8, front view)

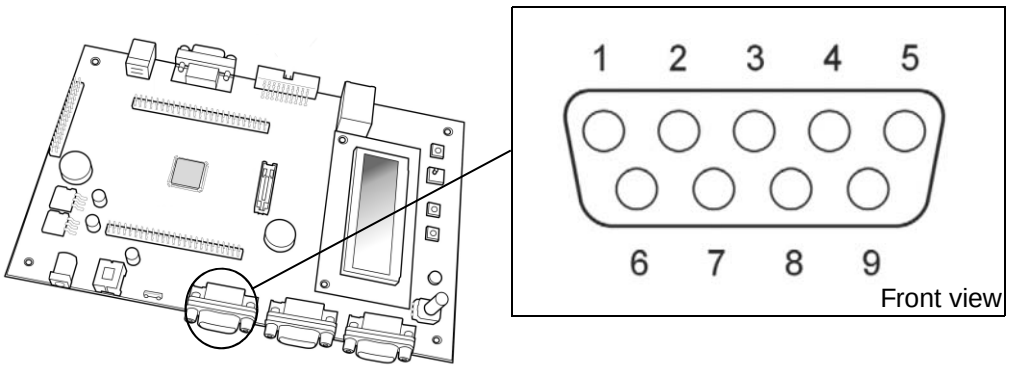


Table 15. RS232 connector (CN8) with full modem support

Pin number	Description	Pin number	Description
1	UART1_DCD	**6**	UART1_DSR
2	UART1_RXD	**7**	UART1_RTS
3	UART1_TXD	**8**	UART1_CTS
4	UART1_DTR	**9**	UART1_RI
5	GND		

3.7 JTAG debug connector CN9

Figure 13. JTAG debug connector (CN9, top view)

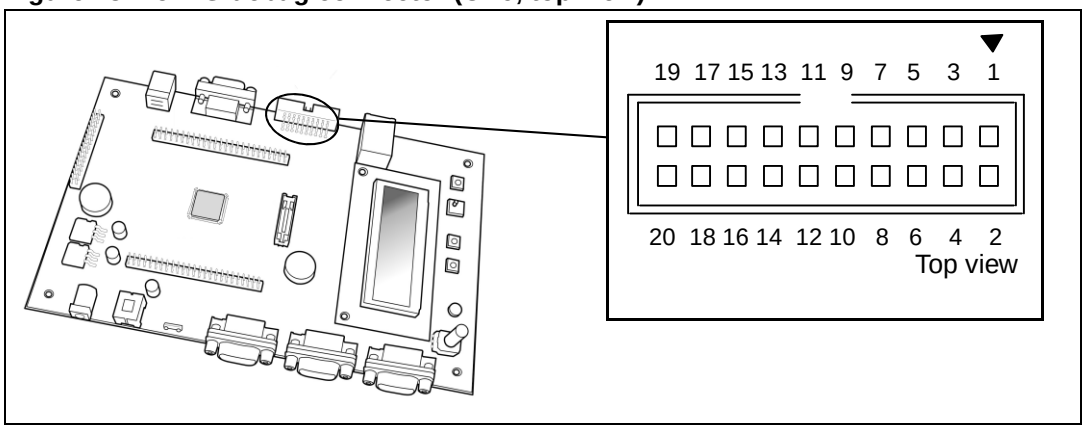


Table 16. JTAG debug connector (CN9)

Pin number	Description	Pin number	Description
1	3.3V power	2	3.3V power
3	TRST	4	GND
5	TDI	6	GND
7	TMS	8	GND
9	TCK	10	GND
11	RTCK	12	GND
13	TDO	14	GND
15	nSRST	16	GND
17	DBGRQ	18	GND
19	DBGACK	20	GND

3.8 RS232 connectors CN10 and CN12

Figure 14. RS232 connectors (CN10 and CN12, front view)

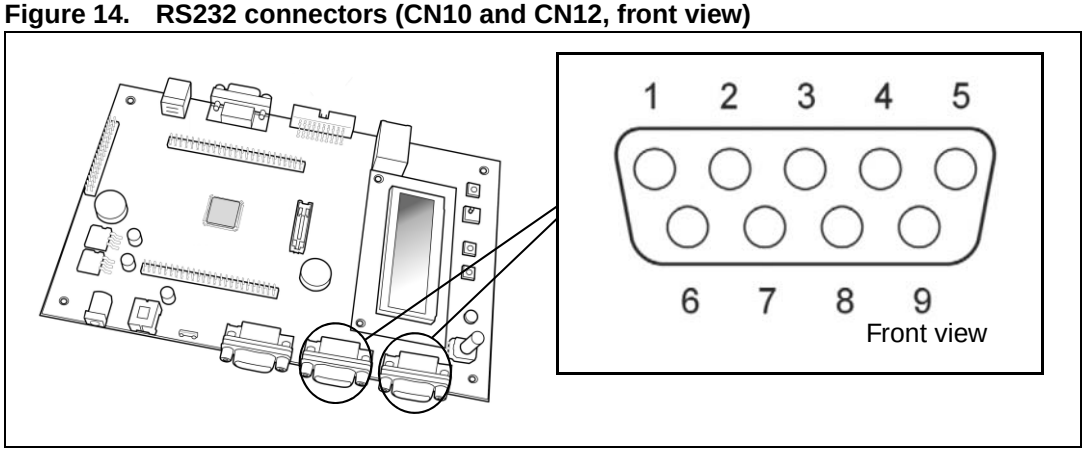


Table 17. RS232 connectors (CN10, CN12)

Pin number	Description	Pin number	Description
CN10			
1	NC	2	UART2_RXD
3	UART2_TXD	4	
5	GND	6	
7		8	
9	NC		
CN12			
1	NC	2	UART3_RXD
3	UART3_TXD	4	
5	GND	6	
7		8	
9	NC		

3.9 Ethernet RJ45 connector CN11

Figure 15. Ethernet RJ45 connector (CN11, front view)

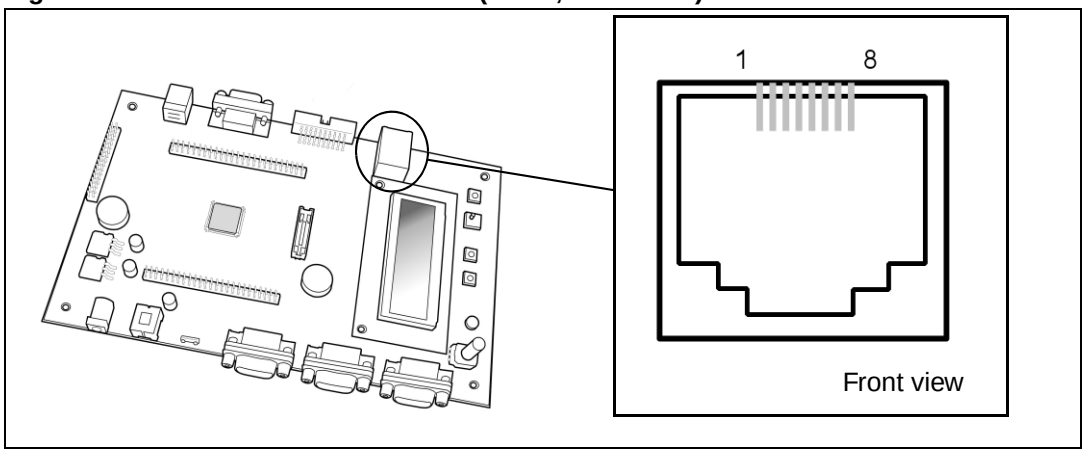


Table 18. Ethernet RJ45 connector (CN11)

Pin number	Description	Pin number	Description
1	TxData+	**5**	Shield
2	TxData-	**6**	RxData-
3	RxData+	**7**	Shield
4	Shield	**8**	Shield

3.10 Daughter board extension connector CN5 and CN6

Two 50-pin male headers CN5 and CN6 can be used to connect a daughter board or standard wrapping board to the STR910-EVAL evaluation board. All 80 GPI/Os and the EMI interface control signals are available on these connectors. Each pin on CN5 and CN6 can be used by a daughter board after disconnecting it from the corresponding function block on the STR910-EVAL evaluation board. Refer to *Table 19* and *Table 20 on page 28* for details.

Table 19. Daughter board extension connector (CN5)

Pin	Description	Alternate function	To disconnect from the STR910-EVAL function block
1	GND	-	-
3	P16	Ethernet	Remove R69
5	P76	Joystick	Remove R68
7	P47	Microphone	Remove R60
9	P46	Motor control speaker	JP1 is not fitted
11	P44	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
13	P42	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
15	P40	Motor control	Disconnect STR910-EVAL evaluation board with motor power drive board. JP7 is not fitted.
17	P71	Ethernet	Remove R51
19	GND	None	-
21	P20	ETM trace UART1 CTS	Disconnect STR910-EVAL evaluation board from ETM tracer. JP21 is not fitted.
23	P50	CAN RX	Remove R16
25	P74	Joystick	Remove R91
27	P51	UART1 RXD	Remove R59
29	P63	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
31	EMI_WRL	None	-
33	P52	Ethernet	Make sure the Ethernet clock is from external crystal by setting of JP25. Please refer to table2.3.
35	P53	Ethernet	Remove R71
37	P60	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
39	GND	None	-
41	P83	LCD	Remove R88
43	P84	LCD	Remove R65

Table 19. Daughter board extension connector (CN5) (continued)

Pin	Description	Alternate function	To disconnect from the STR910-EVAL function block
45	P85	LCD	Remove R89
47	P86	LCD	Remove R66
49	D5V(note1)	None	-
2	P14	Ethernet	Remove R52
4	P15	Ethernet	Remove R76
6	P17	Ethernet	Remove R74
8	P77	Joystick	Remove R92
10	GND	None	-
12	P45	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
14	P43	Motor control	JP7 is not fitted.
16	P41	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
18	P70	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
20	P72	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board. JP8 is not fitted.
22	P21	ETM trace UART1 DSR	Disconnect STR910-EVAL evaluation board from ETM tracer. JP19 is not fitted.
24	P73	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
26	P75	Joystick	Remove R67
28	P62	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
30	GND	None	-
32	EMI_WRH	None	-
34	P80	LCD	Remove R63
36	P81	LCD	Remove R87
38	P82	LCD	Remove R64
40	P61	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
42	P22	ETM UART1 DCD	Disconnect STR910-EVAL evaluation board from ETM tracer. JP18 is not fitted.
44	P23	ETM UART1 RI	Disconnect STR910-EVAL evaluation board from ETM tracer. JP22 is not fitted.
46	P24	ETM	Disconnect STR910-EVAL evaluation board from ETM trace

Table 19. Daughter board extension connector (CN5) (continued)

Pin	Description	Alternate function	To disconnect from the STR910-EVAL function block
48	P87	LCD	Remove R90
50	GND		

Table 20. Daughter board extension connector (CN6)

Pin	Description	Alternate function	To disconnect from the STR910-EVAL function block
1	GND	None	-
3	P12	Ethernet	Remove R77
5	P11	Ethernet	Remove R53
7	P67	ETM Motor control	Place JP16 in position 1•2 and remove R105.
9	TAMPER_IN	None	-
11	RESET#	None	-
13	P05	Ethernet	Remove R56
15	P64	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
17	P56	SPI Flash	Remove R15
19	D5V(note1)	No	-
21	P03	Ethernet	Remove R73
23	EMI_ALE	None	-
25	P54	SPI Flash	-
27	P37	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
29	P00	Ethernet	Remove R78
31	P35	UART3 TX	-
33	P34	UART1 TX	-
35	P33	UART1 RTS UART2 TX	-
37	P31	UART3 RX	Remove R75
39	GND	None	-
41	P27	ETM trace USB clock	Disconnect STR910-EVAL evaluation board from ETM racer. JP17 is not fitted.
43	P94	LCD	Remove R62
45	P92	LED2	Remove R83
47	P90	LED0	Remove R81

Table 20. Daughter board extension connector (CN6) (continued)

Pin	Description	Alternate function	To disconnect from the STR910-EVAL function block
49	P25	ETM Trace Motor control	Disconnect STR910-EVAL evaluation board from ETM trace. JP8 is not fitted.
2	P13	Ethernet	Remove R70
4	RST_OUT	None	-
6	P10	Ethernet	Remove R54
8	P66	ETM trace Motor control	Disconnect STR910-EVAL evaluation board from ETM trace
10	GND	None	-
12	P07	Ethernet	Remove R79
14	P06	Ethernet	Remove R72
16	P65	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
18	P57	SPI Flash	Remove R14
20	P04	Ethernet	Remove R80
22	P55	SPI Flash	-
24	EMI_RD	None	-
26	P02	Ethernet	Remove R55
28	P01	Motor control or USB hardware disconnect simulation	Disconnect STR910-EVAL evaluation board from motor power drive board and place JP9 in position 1•2.
30	GND	None	-
32	P36	CAN TX	-
34	P97	LCD	Remove R61
36	P96	LCD	Remove R86
38	P32	UART1 DTR UART2 RX	JP14 is not fitted.
40	P95	LCD	Remove R85
42	P30	Motor control	Disconnect STR910-EVAL evaluation board from motor power drive board
44	P26	ETM Trace	Disconnect STR910-EVAL evaluation board from ETM trace
46	P93	LED3	Remove R84
48	P91	LED1	Remove R82
50	GND	None	-

Note: The D5V pin can be used to power the STR910-EVAL board from the power supply provided by the daughter board.

4 Schematics

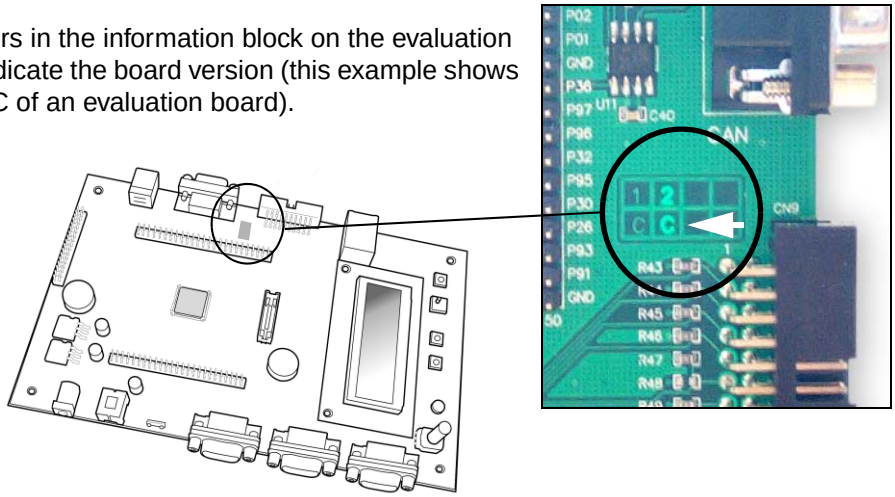
This section provides design schematics for the STR910-EVALboard key features, which are provided to help you implement these features in your own application designs. Schematics are provided for:

- STR910F microcontroller connections (*Figure 17*)
- Power supply (*Figure 18*)
- CAN and USB connectors (*Figure 19*)
- UART and IrDA connectors (*Figure 20*)
- Ethernet connector (*Figure 21*)
- Audio record and playback features (*Figure 22*)
- JTAG and ETM connectors (*Figure 23*)
- LCD and joystick features (*Figure 24*)

Schematics have versions, as do major versions of the evaluation board. Schematic version numbers are made up of a letter number combination (for example A.0, A.1, B.0, B.1, ...), which is found in the information block in each schematic diagram. In these version numbers, the letter indicates the version of the evaluation board that the drawings correspond to, and the number indicates the revision of the schematics for a given version of the evaluation board. Zero (0) indicates that the schematics for the specified board are in their initial version (have not been revised).

Figure 16. Find the version of your evaluation board

The letters in the information block on the evaluation board indicate the board version (this example shows version C of an evaluation board).



Note: numbers in this block correspond to the board layers.

Figure 17. STR910-EVAL microcontroller connections

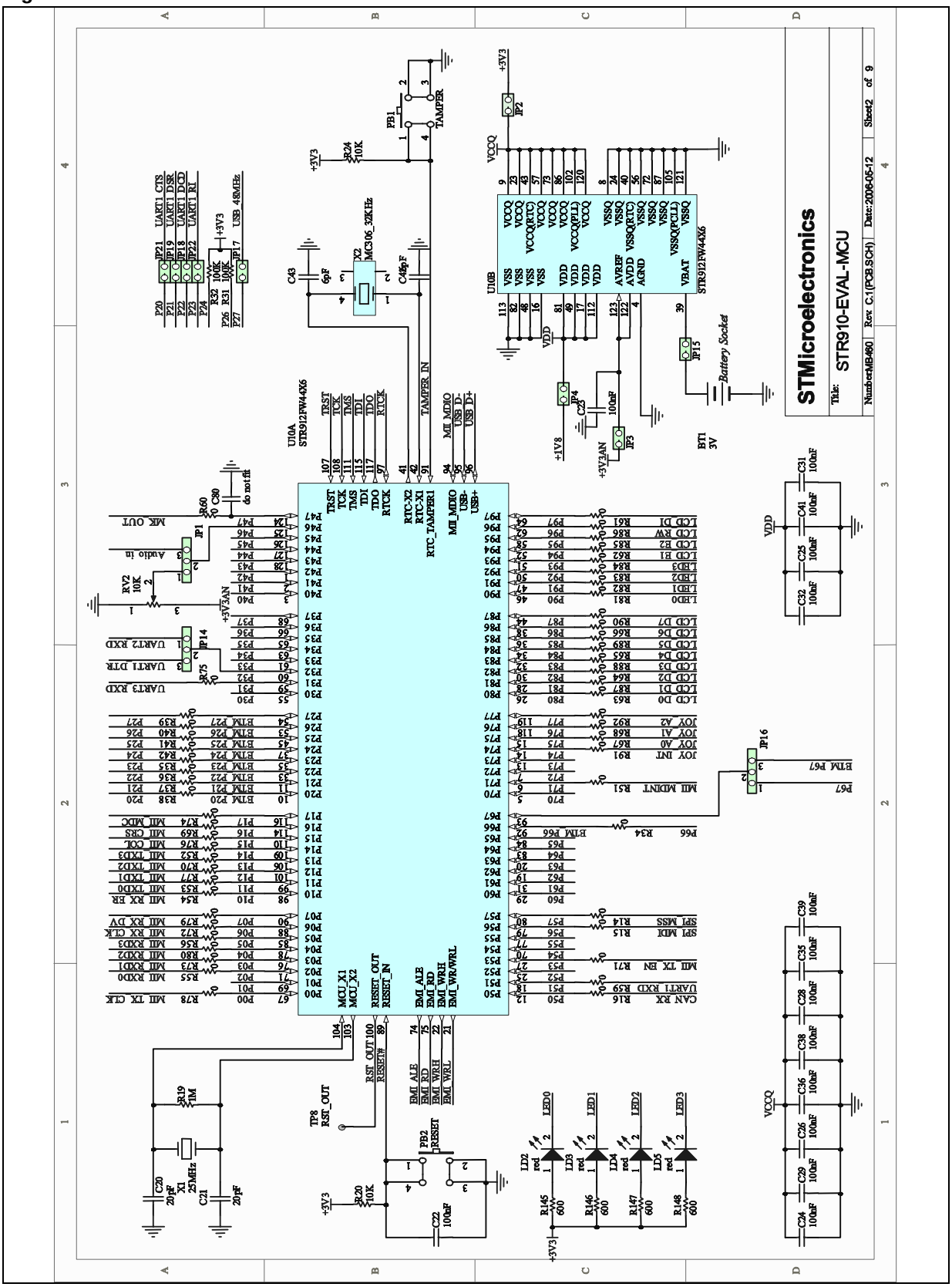


Figure 18. Power supply

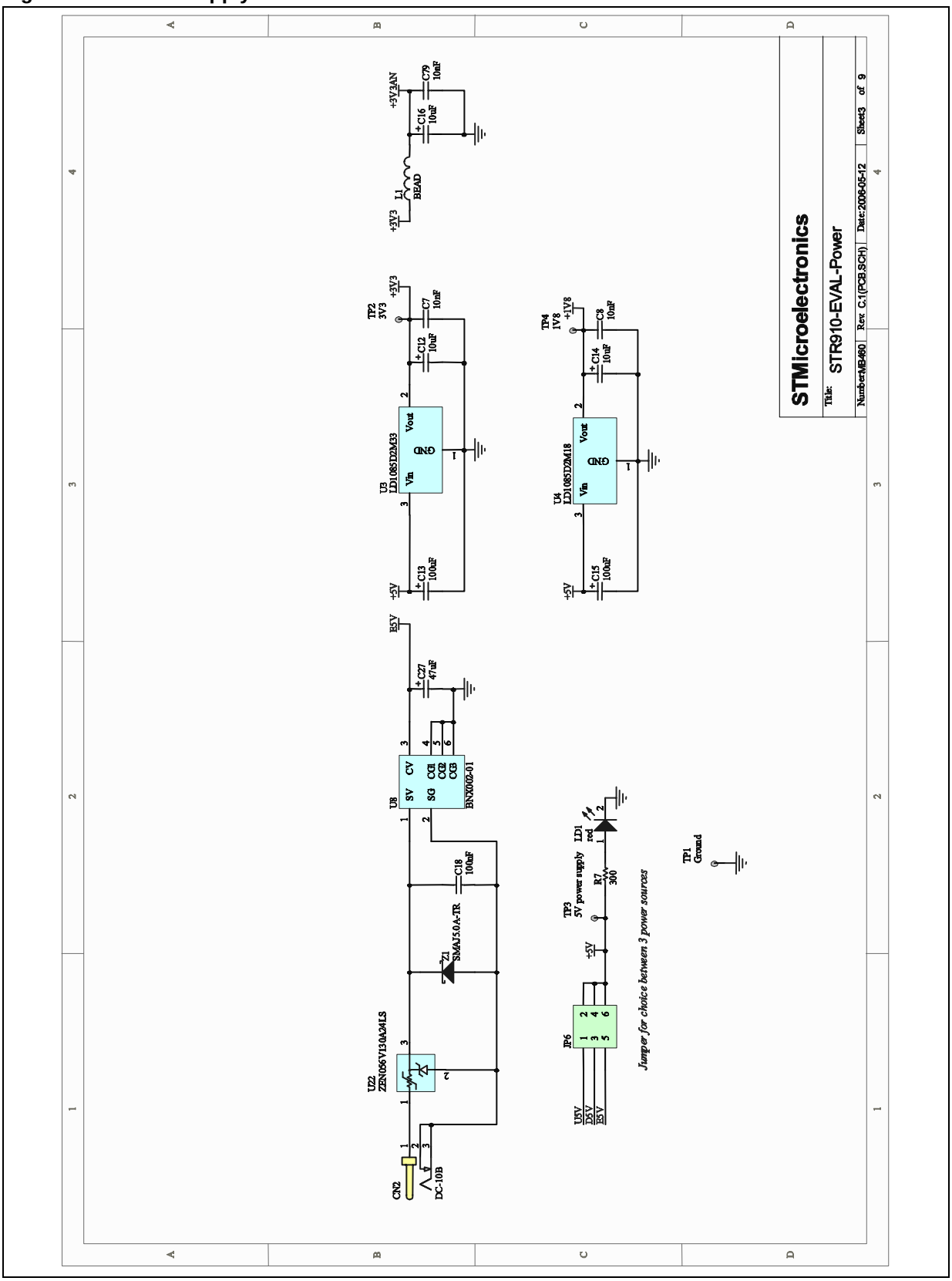


Figure 19. CAN and USB connections

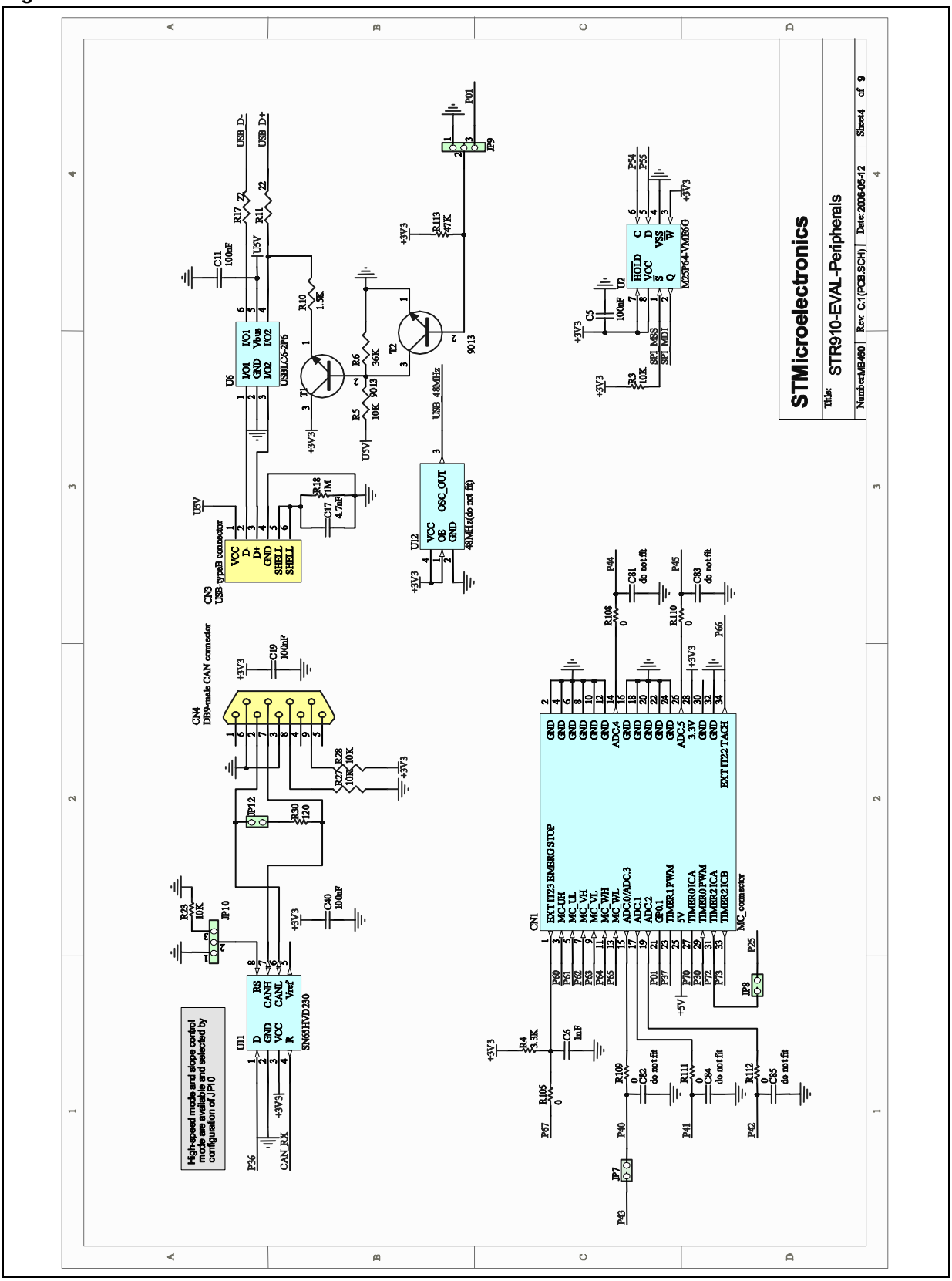


Figure 20. UART and IrDA connections

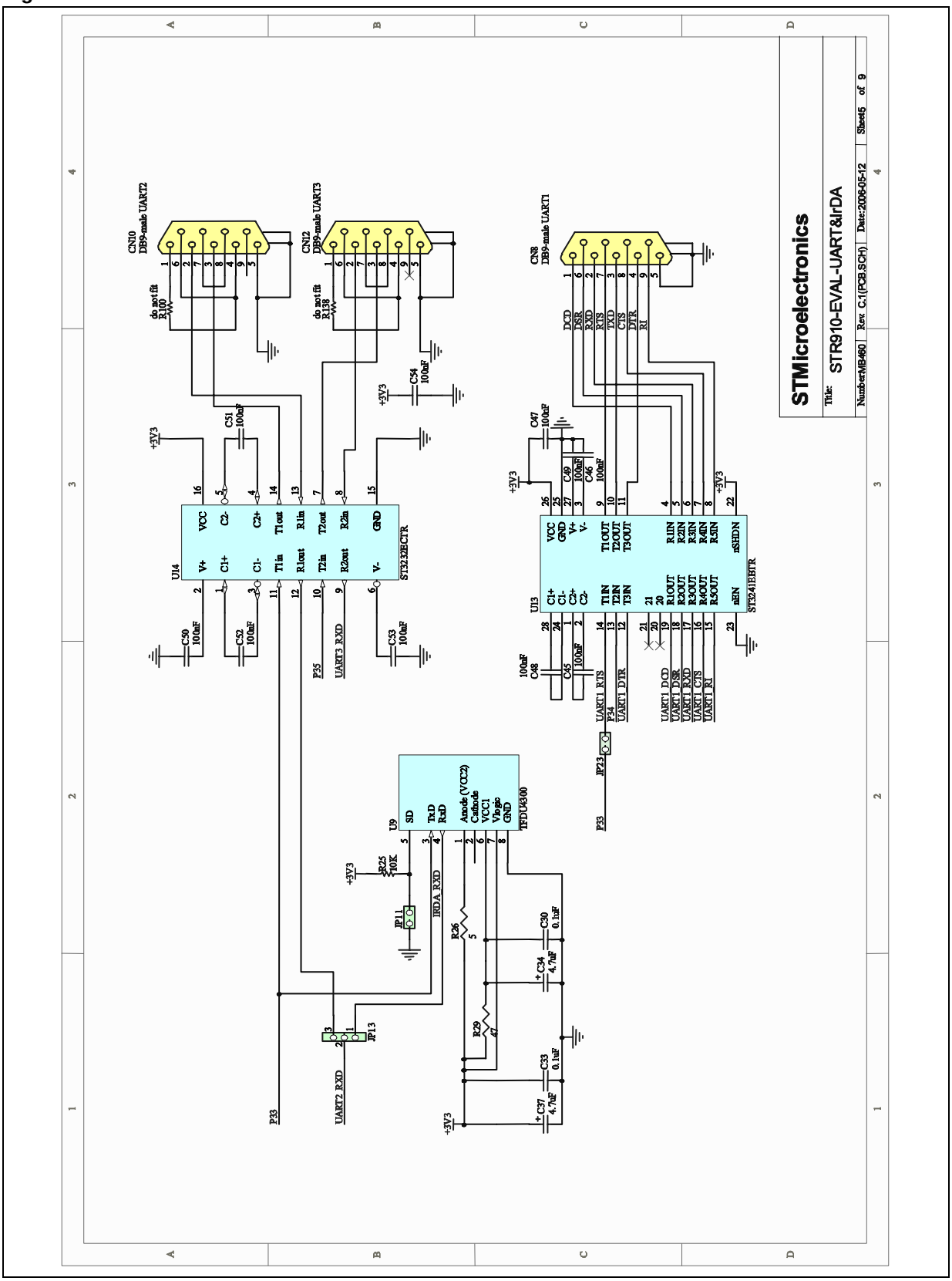


Figure 21. Ethernet connection

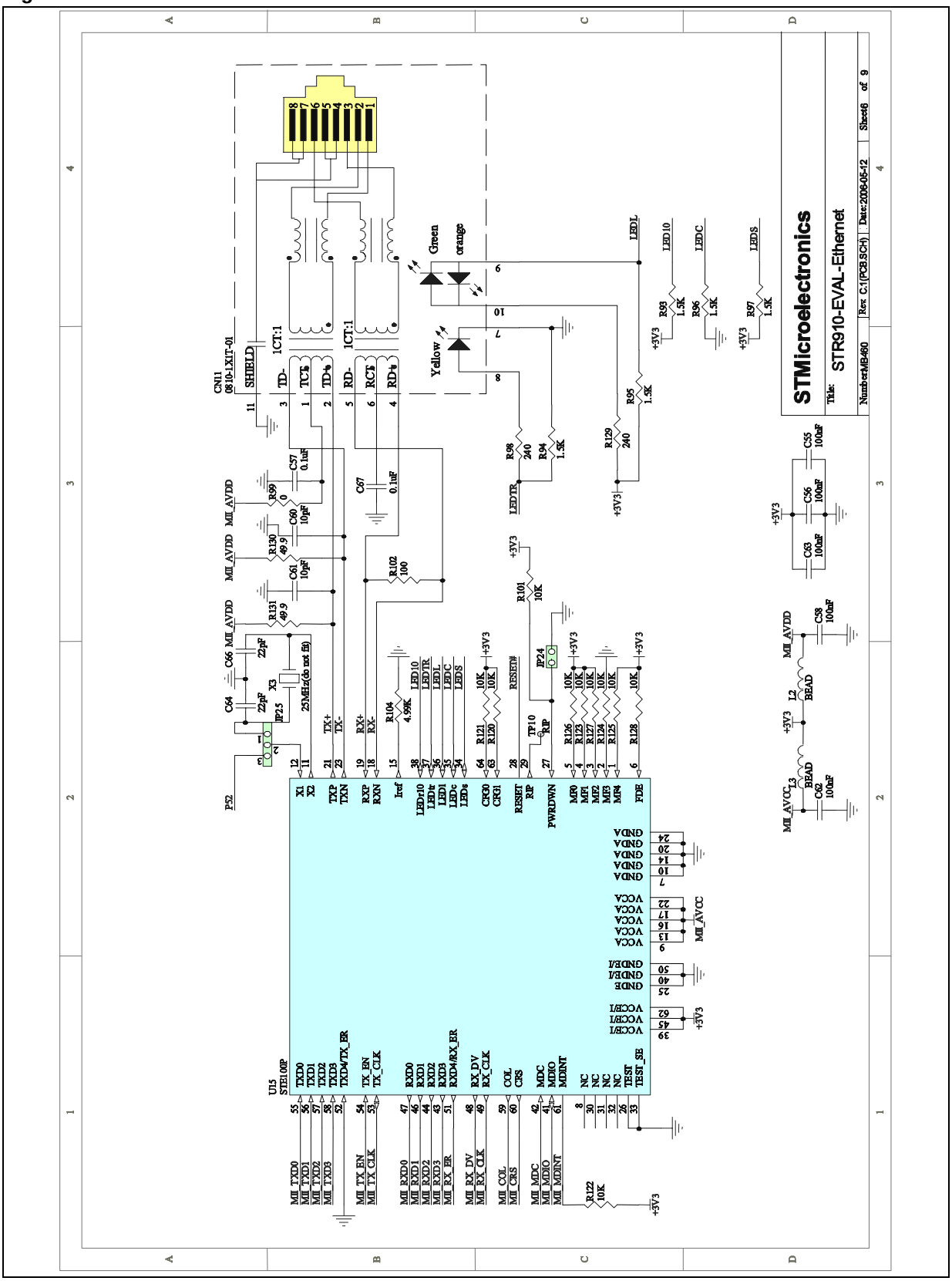


Figure 22. Audio peripherals

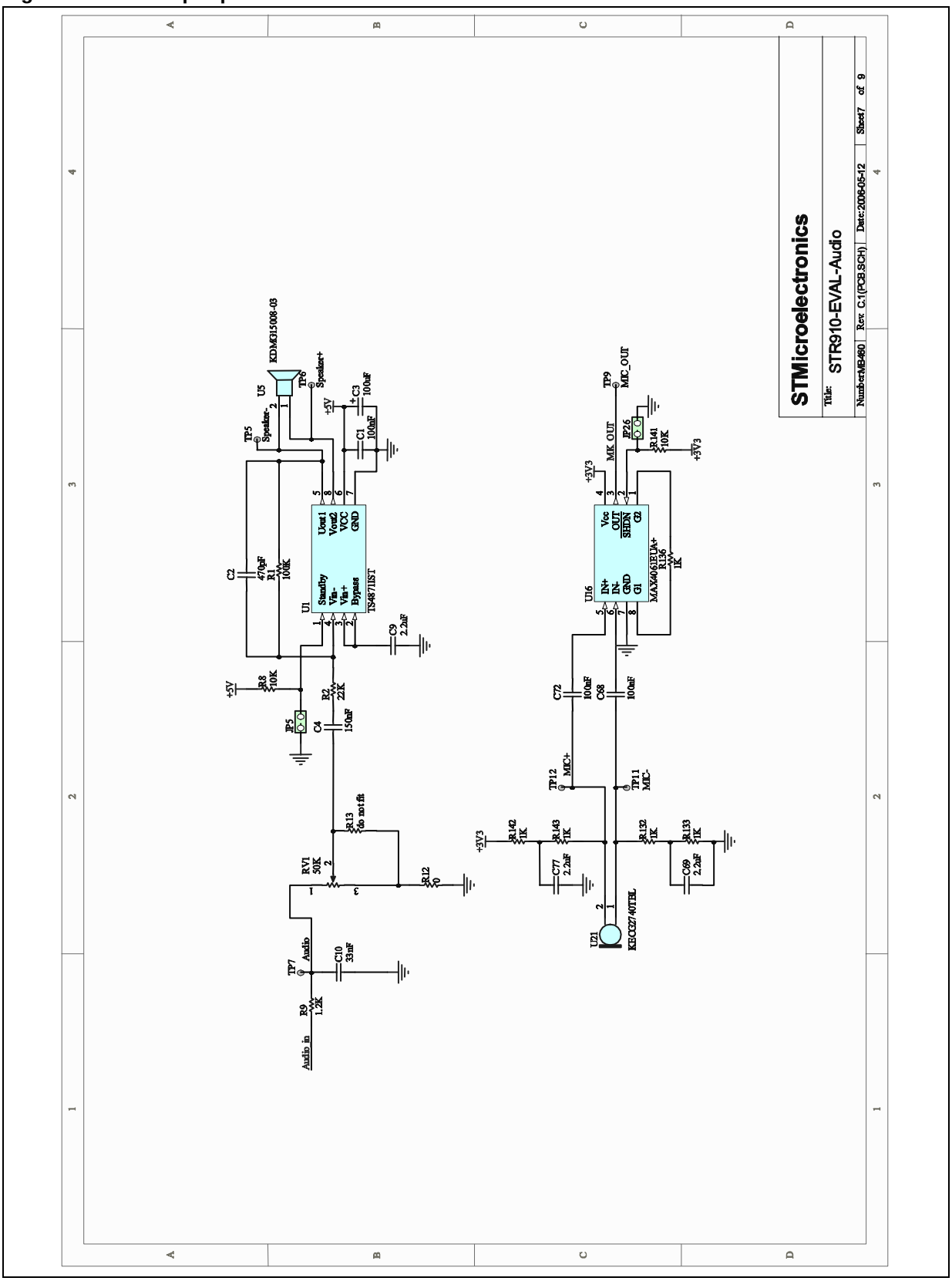


Figure 23. JTAG, ETM and daughter board connections

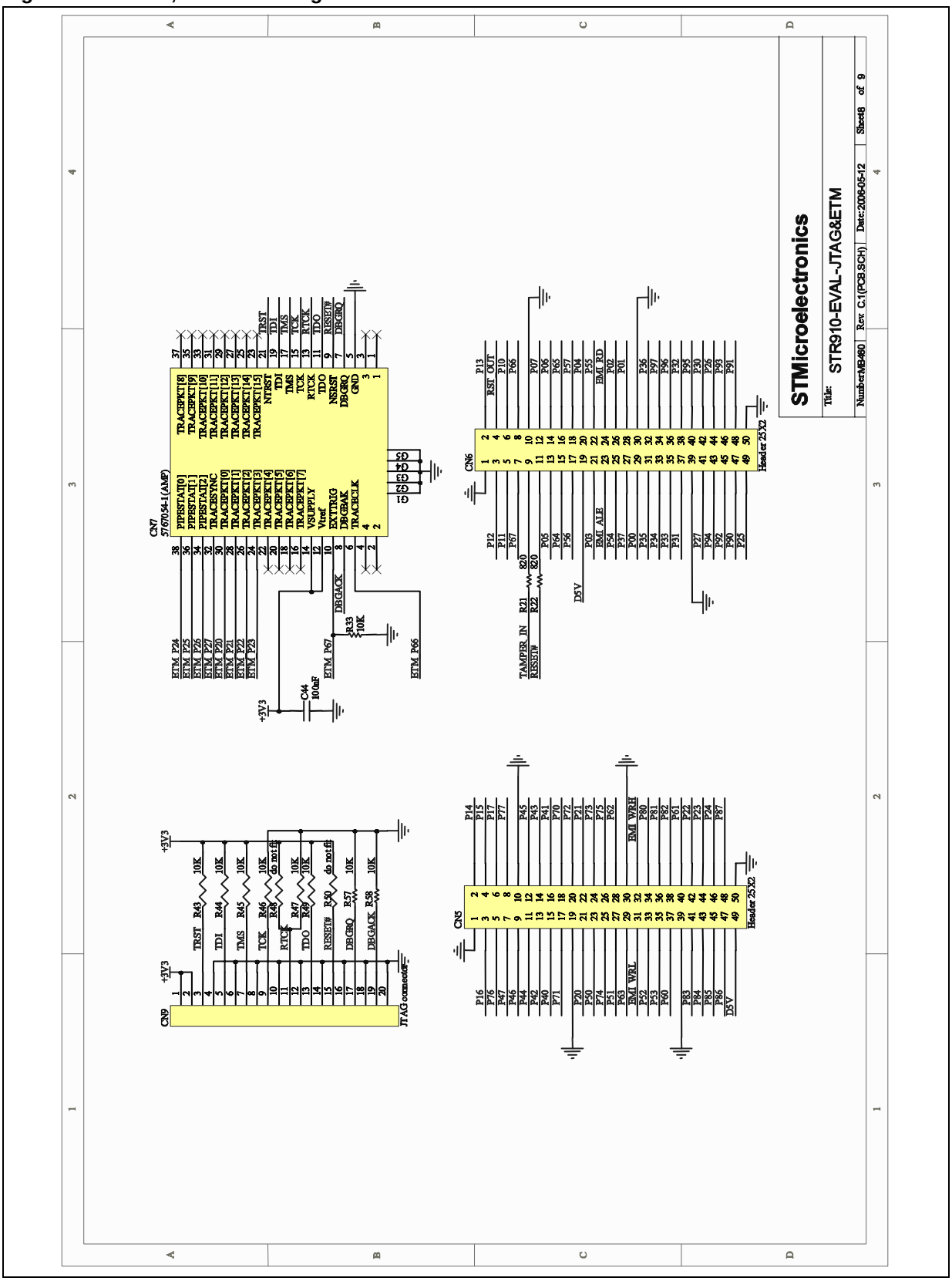
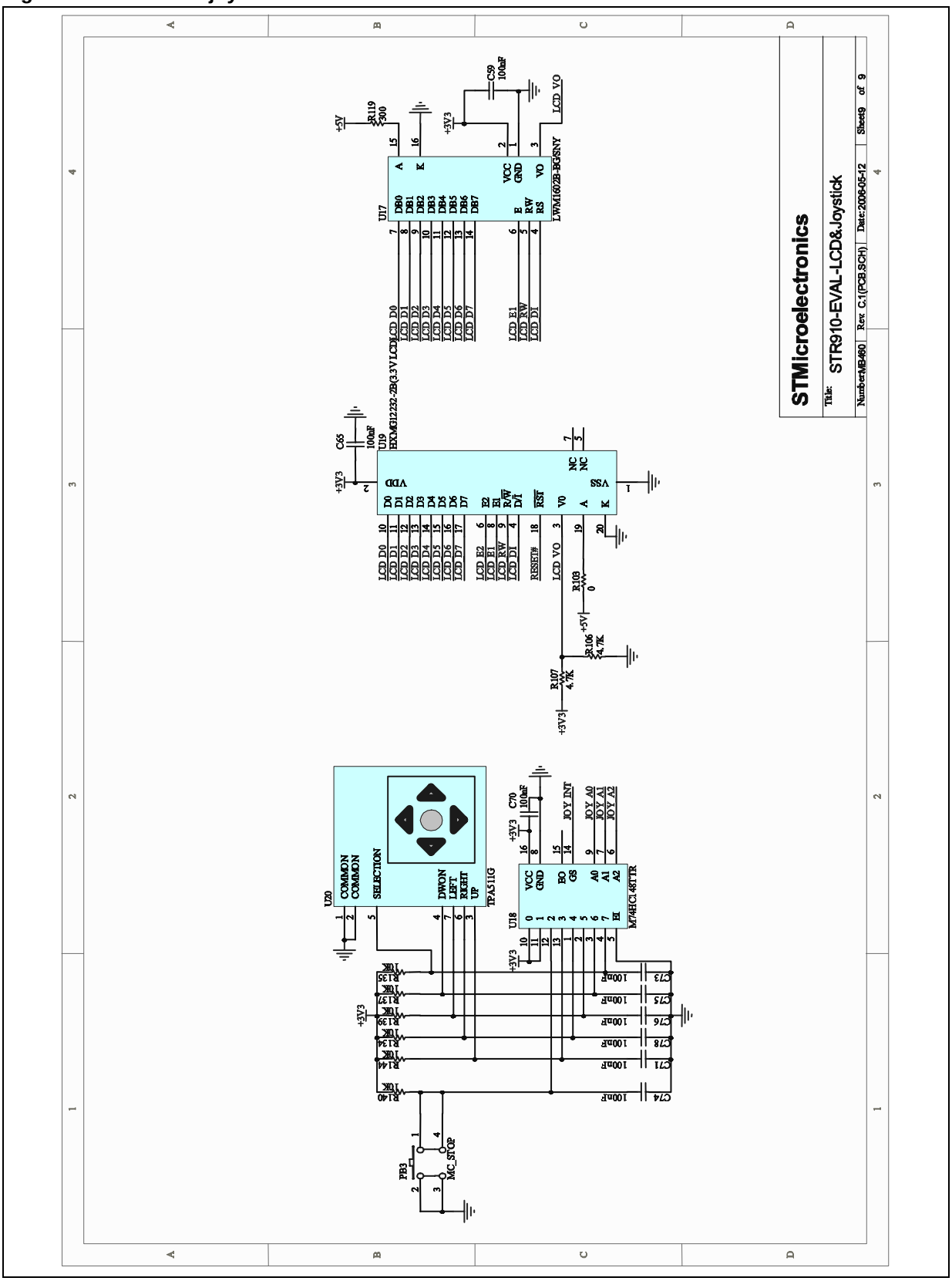


Figure 24. LCD and joystick



Appendix A Implemented STR912F pin functions

The STR910-Eval peripheral implementation requires the use of several alternate pin functions. *Table 21* shows primary and alternate pin functions for the **STR912FAW47X6** that are used in the application board design. The table indicates the pin functions used for STR910-EVAL peripherals in blue. If you choose to implement the Embedded Trace Module (ETM) connector for your debugging tool, you will use the alternate functions for specific pins that are indicated in gray instead of the function indicated in blue.

Table 21. Implemented pin functions of the STR912FAW47X6

Pin #	Pin name	Default input function	Alternate functions				For peripheral...
			Input 1	Output 1	Output 2	Output 3	
67	P0.0	MII_TX_CLK PHY Xmit clock	I2C0_CLKIN *I2C clock in*	GPIO_0.0 GP Output	I2C0_CLKOUT I2C *clock out*	ETM_PCK0 *ETM Packet*	Ethernet
69	P0.1	-	I2C0_DIN *I2C data in*	GPIO_0.1 GP Output	I2C0_DOUT I2C data out	ETM_PCK1 *ETM Packet*	Motor control or USB
71	P0.2	MII_RXD0 PHY Rx data0	I2C1_CLKIN *I2C clock in*	GPIO_0.2 GP Output	I2C1_CLKOUT I2C *clock out*	ETM_PCK2 *ETM Packet*	Ethernet
76	P0.3	MII_RXD1 PHY Rx data	I2C1_DIN I2C data in	GPIO_0.3 GP Output	I2C1_DOUT I2C data out	ETM_PCK3 *ETM Packet*	
78	P0.4	MII_RXD2, PHY Rx data	TIM0_CAPA Input Capture	GPIO_0.4 GP Output	EMI_CS0n EMI Chip Select	ETM_PSTAT0 ETM pipe status	
85	P0.5	MII_RXD3 PHY Rx data	TIM0_CAPB Input Capture	GPIO_0.5 GP Output	EMI_CS1n EMI Chip Select	ETM_PSTAT1 ETM pipe status	
88	P0.6	MII_RX_CLK PHY Rx clock	TIM2_CAPA Input Capture	GPIO_0.6 GP Output	EMI_CS2n EMI Chip Select	ETM_PSTAT2 ETM pipe status	
90	P0.7	MII_RX_DV PHY data valid	TIM2_CAPB Input Capture	GPIO_0.7 GP Output	EMI_CS3n EMI Chip Select	ETM_TRSYNC ETM trace sync	
98	P1.0	MII_RX_ER PHY rcv error	ETM_EXTRIG ETM ext. trigger	GPIO_1.0 GP Output	UART1_TX UART xmit data	SSP1_SCLK SSP mstr clk out	Ethernet
99	P1.1	-	UART1_RX UART rcv data	GPIO_1.1 GP Output	MII_TXD0, MAC Tx data	SSP1_MOSI SSP mstr dat out	
101	P1.2	-	SSP1_MISO SSP mstr data in	GPIO_1.2 GP Output	MII_TXD1 MAC Tx data	UART0_TX UART xmit data	
106	P1.3	-	UART2_RX UART rcv data	GPIO_1.3 GP Output	MII_TXD2 MAC Tx data	SSP1_NSS SSP mstr sel out	
109	P1.4	-	I2C0_CLKIN *I2C clock in*	GPIO_1.4 GP Output	MII_TXD3 MAC Tx data	I2C0_CLKOUT *I2C clock out*	
110	P1.5	MII_COL PHY collision	CAN_RX CAN rcv data	GPIO_1.5 GP Output	UART2_TX UART xmit data	ETM_TRCLK ETM trace clock	
114	P1.6	MII_CRS PHY carrier sns	I2C0_DIN *I2C data in*	GPIO_1.6 GP Output	CAN_TX CAN Tx data	I2C0_DOUT I2C data out	
116	P1.7	-	ETM_EXTRIG ETM ext. trigger	GPIO_1.7 GP Output	MII_MDC MAC mgt dat ck	ETM_TRCLK ETM trace clock	

Table 21. Implemented pin functions of the STR912FAW47X6 (continued)

Pin #	Pin name	Default input function	Alternate functions				For peripheral...
			Input 1	Output 1	Output 2	Output 3	
10	P2.0	UART0_CTS Clear To Send	I2C0_CLKIN *I2C clock in*	GPIO_2.0 GP Output	I2C0_CLKOUT *I2C clock out*	ETM_PCK0 *ETM Packet*	RS232 n°1 or ETM
11	P2.1	UART0_DSR Data Set Ready	I2C0_DIN *I2C data in*	GPIO_2.1 GP Output	I2C0_DOUT I2C data out	ETM_PCK1 *ETM Packet*	
33	P2.2	UART0_DCD Dat Carrier Det	I2C1_CLKIN *I2C clock in*	GPIO_2.2 GP Output	I2C1_CLKOUT *I2C clock out*	ETM_PCK2 *ETM Packet*	
35	P2.3	UART0_RI Ring Indicator	I2C1_DIN I2C data in	GPIO_2.3 GP Output	I2C1_DOUT I2C data out	ETM_PCK3 *ETM Packet*	
37	P2.4	EXTCLK_T0T1 *Ext clk timer0/1*	SSP0_SCLK SSP slv clk in	GPIO_2.4 GP Output	SSP0_SCLK SSP mstr clk out	ETM_PSTAT0 ETM pipe status	ETM
45	P2.5	EXTCLK_T2T3 *Ext clk timer2/3*	SSP0_MOSI SSP slv dat in	GPIO_2.5 GP Output	SSP0_MOSI SSP mstr dat out	ETM_PSTAT1 ETM pipe status	Motor Control or ETM
53	P2.6	-	SSP0_MISO SSP mstr data in	GPIO_2.6 GP Output	SSP0_MISO SSP slv data out	ETM_PSTAT2 ETM pipe status	ETM
54	USBCLK _P2.7	USB_CLK48M *48MHz to USB*	SSP0_NSS SSP slv sel in	GPIO_2.7 GP Output	SSP0_NSS SSP mstr sel out	ETM_TRSYNC ETM trace sync	USB or ETM
55	P3.0	DMA_RQST0 Ext DMA request	UART0_RxD UART rcv data	GPIO_3.0 GP Output	UART2_TX UART xmit data	TIM0_PWMA *Out comp/PWM*	Motor control
59	P3.1	DMA_RQST1 Ext DMA request	UART2_RxD UART rcv data	GPIO_3.1 GP Output	UART0_TX UART xmit data	TIM1_PWMA *Out comp/PWM*	RS232 n° 3
60	P3.2	EXINT2 External Intr	UART1_RxD UART rcv data	GPIO_3.2 GP Output	CAN_TX CAN Tx data	UART0_DTR Data Trmnl Rdy	RS232 n°2 or n°1
61	P3.3	EXINT3 External Intr	CAN_RX CAN rcv data	GPIO_3.3 GP Output	UART1_TX UART xmit data	UART0_RTS Ready To Send	RS232 n°2 or n°1
63	P3.4	EXINT4 External Intr	SSP1_SCLK SSP slv clk in	GPIO_3.4 GP Output	SSP1_SCLK SSP mstr clk out	UART0_TX UART xmit data	RS232 n°1
65	P3.5	EXINT5 External Intr	SSP1_MISO SSP mstr data in	GPIO_3.5 GP Output	SSP1_MISO SSP slv data out	UART2_TX UART xmit data	RS232 n°3
66	P3.6	EXINT6 External Intr	SSP1_MOSI SSP slv dat in	GPIO_3.6 GP Output	SSP1_MOSI SSP mstr dat out	CAN_TX CAN Tx data	CAN
68	P3.7	EXINT7 External Intr	SSP1_NSS SSP slv select in	GPIO_3.7 GP Output	SSP1_NSS SSP mstr sel out	TIM1_PWMA *Out comp/PWM*	RS232 n°2
3	P4.0	ADC0 ADC input chnl	TIM0_CAPA Input Capture	GPIO_4.0 GP Output	TIM0_PWMA *Out comp/PWM*	ETM_PCK0 *ETM Packet*	Motor control
2	P4.1	ADC1 ADC input chnl	TIM0_CAPB Input Capture	GPIO_4.1 GP Output	TIM0_COMB *Out comp*	ETM_PCK1 *ETM Packet*	
1	P4.2	ADC2 ADC input chnl	TIM1_CAPA Input Capture	GPIO_4.2 GP Output	TIM1_PWMA *Out comp/PWM*	ETM_PCK2 *ETM Packet*	Motor control
128	P4.3	ADC3 ADC input chnl	TIM1_CAPB Input Capture	GPIO_4.3 GP Output	TIM1_COMB *Out comp*	ETM_PCK3 *ETM Packet*	
127	P4.4	ADC4 ADC input chnl	TIM2_CAPA Input Capture	GPIO_4.4 GP Output	TIM2_PWMA *Out comp/PWM*	ETM_PSTAT0 ETM pipe status	
126	P4.5	ADC5 ADC input chnl	TIM2_CAPB Input Capture	GPIO_4.5 GP Output	TIM2_COMB *Out comp*	ETM_PSTAT1 ETM pipe status	
125	P4.6	ADC6 ADC input chnl	TIM3_CAPA Input Capture	GPIO_4.6 GP Output	TIM3_PWMA *Out comp/PWM*	ETM_PSTAT2 ETM pipe status	Audio PWM or potentiometer

Table 21. Implemented pin functions of the STR912FAW47X6 (continued)

Pin #	Pin name	Default input function	Alternate functions				For peripheral...
			Input 1	Output 1	Output 2	Output 3	
124	P4.7	ADC7 ADC input chnl	TIM3_CAPB Input Capture	GPIO_4.7 GP Output	TIM3_COMB *Out comp*	ETM_TRSYNC ETM trace sync	Microphone in
12	P5.0	EXINT8 External Intr	CAN_RX CAN rcv data	GPIO_5.0 GP Output	ETM_TRCLK ETM trace clock	UART0_TX UART xmit data	CAN
18	P5.1	EXINT9 External Intr	UART0_RxD UART rcv data	GPIO_5.1 GP Output	CAN_TX CAN Tx data	UART2_TX UART xmit data	RS232 n°1
25	PHYCLK _P5.2	EXINT10 External Intr	UART2_RxD UART rcv data	GPIO_5.2 GP Output	MII_PHYCLK *25Mhz to PHY*	TIM3_PWMA *Out comp/PWM*	Ethernet
27	P5.3	EXINT11 External Intr	ETM_EXTRIG ETM ext. trigger	GPIO_5.3 GP Output	MII_TX_EN MAC xmit enbl	TIM2_PWMA *Out comp/PWM*	
70	P5.4	EXINT12 External Intr	SSP0_SCLK SSP slv clk in	GPIO_5.4 GP Output	SSP0_SCLK SSP mstr clk out	EMI_CS0n EMI Chip Select	Flash
77	P5.5	EXINT13 External Intr	SSP0_MOSI SSP slv dat in	GPIO_5.5 GP Output	SSP0_MOSI SSP mstr dat out	EMI_CS1n EMI Chip Select	
79	P5.6	EXINT14 External Intr	SSP0_MISO SSP mstr dat in	GPIO_5.6 GP Output	SSP0_MISO SSP slv data out	EMI_CS2n EMI Chip Select	
80	P5.7	EXINT15 External Intr	SSP0_NSS SSP slv select in	GPIO_5.7 GP Output	SSP0_NSS SSP mstr sel out	EMI_CS3n EMI Chip Select	
29	P6.0	EXINT16 External Intr	TIM0_CAPA Input Capture	GPIO_6.0 GP Output	TIM0_PWMA *Out comp/PWM*	MC_UH IMC phase U hi	Motor control
31	P6.1	EXINT17 External Intr	TIM0_CAPB Input Capture	GPIO_6.1 GP Output	TIM0_COMB *Out comp*	MC_UL IMC phase U lo	
19	P6.2	EXINT18 External Intr	TIM1_CAPA Input Capture	GPIO_6.2 GP Output	TIM1_PWMA *Out comp/PWM*	MC_VH IMC phase V hi	
20	P6.3	EXINT19 External Intr	TIM1_CAPB Input Capture	GPIO_6.3 GP Output	TIM1_COMB *Out comp*	MC_VL IMC phase V lo	
83	P6.4	EXINT20 External Intr	TIM2_CAPA Input Capture	GPIO_6.4 GP Output	TIM2_PWMA *Out comp/PWM*	MC_WH IMC phase W hi	
84	P6.5	EXINT21 External Intr	TIM2_CAPB Input Capture	GPIO_6.5 GP Output	TIM2_COMB *Out comp*	MC_WL IMC phase W lo	
92	P6.6	EXINT22_TRIG Ext Intr & Tach	UART0_RxD UART rcv data	GPIO_6.6 GP Output	TIM3_PWMA *Out comp/PWM*	ETM_TRCLK ETM trace clock	Motor control or ETM
93	P6.7	EXINT23_STOP Ext Intr & Estop	ETM_EXTRIG ETM ext. trigger	GPIO_6.7 GP Output	TIM3_COMB *Out comp*	UART0_TX UART xmit data	
5	P7.0	EXINT24 External Intr	TIM0_CAPA Input Capture	GPIO_7.0 GP Output	8b) EMI_A0 16b) EMI_A16	ETM_PCK0 *ETM Packet*	Motor control
6	P7.1	EXINT25 External Intr	TIM0_CAPB Input Capture	GPIO_7.1 GP Output	8b) EMI_A1 16b) EMI_A17	ETM_PCK1 *ETM Packet*	Ethernet
7	P7.2	EXINT26 External Intr	TIM2_CAPA Input Capture	GPIO_7.2 GP Output	8b) EMI_A2 16b) EMI_A18	ETM_PCK2 *ETM Packet*	Motor control
13	P7.3	EXINT27 External Intr	TIM2_CAPB Input Capture	GPIO_7.3 GP Output	8b) EMI_A3 16b) EMI_A19	ETM_PCK3 *ETM Packet*	

Table 21. Implemented pin functions of the STR912FAW47X6 (continued)

Pin #	Pin name	Default input function	Alternate functions				For peripheral...
			Input 1	Output 1	Output 2	Output 3	
14	P7.4	EXINT28 External Intr	UART0_RxD UART rcv data	GPIO_7.4 GP Output	8b) EMI_A4 16b) EMI_A20	EMI_CS3n EMI Chip Select	Joystick
15	P7.5	EXINT29 External Intr	ETM_EXTRIG ETM ext. trigger	GPIO_7.5 GP Output	8b) EMI_A5 16b) EMI_A21	EMI_CS2n EMI Chip Select	
118	P7.6	EXINT30 External Intr	TIM3_CAPA Input Capture	GPIO_7.6 GP Output	8b) EMI_A6 16b) EMI_A22	EMI_CS1n EMI Chip Select	
119	P7.7	EXINT31 External Intr	TIM3_CAPB Input Capture	GPIO_7.7 GP Output	8b) EMI_A7 16b) EMI_CS0n	16b) EMI_A23 EMI addr out	
26	P8.0	-	-	GPIO_8.0 GP Output	8b) EMI_D0 16b) EMI_AD0	-	LCD
28	P8.1	-	-	GPIO_8.1 GP Output	8b) EMI_D1 16b) EMI_AD1	-	
30	P8.2	-	-	GPIO_8.2 GP Output	8b) EMI_D2 16b) EMI_AD2	-	
32	P8.3	-	-	GPIO_8.3 GP Output	8b) EMI_D3 16b) EMI_AD3	-	
34	P8.4	-	-	GPIO_8.4 GP Output	8b) EMI_D4 16b) EMI_AD4	-	
36	P8.5	-	-	GPIO_8.5 GP Output	8b) EMI_D5 16b) EMI_AD5	-	
38	P8.6	-	-	GPIO_8.6 GP Output	8b) EMI_D6 16b) EMI_AD6	-	
44	P8.7	-	-	GPIO_8.7 GP Output	8b) EMI_D7 16b) EMI_AD7	-	
46	P9.0	-	-	GPIO_9.0 GP Output	8b) EMI_A8 16b) EMI_AD8	-	LED
47	P9.1	-	-	GPIO_9.1 GP Output	8b) EMI_A9 16b) EMI_AD9	-	LED
50	P9.2	-	-	GPIO_9.2 GP Output	8b) EMI_A10 16b) EMI_AD10	-	
51	P9.3	-	-	GPIO_9.3 GP Output	8b) EMI_A11 16b) EMI_AD11	-	
52	P9.4	-	-	GPIO_9.4 GP Output	8b) EMI_A12 16b) EMI_AD12	-	LCD
58	P9.5	-	-	GPIO_9.5 GP Output	8b) EMI_A13 16b) EMI_AD13	-	
62	P9.6	-	-	GPIO_9.6 GP Output	8b) EMI_A14 16b) EMI_AD14	-	
64	P9.7	-	-	GPIO_9.7 GP Output	8b) EMI_A15 16b) EMI_AD15	-	

Appendix B Product support

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Collect the following information about the product before contacting ST or your distributor:

1. Name of the company where you purchased the product.
2. Date of purchase.
3. Order Code: Refer to the side your emulators box. The order code will depend on the region in which is was ordered (for example, the UK, Continental Europe or the USA).
4. Serial Number: The serial number is found located on the rear panel of the ST Micro Connect box and is also listed on the Global Reference card provided with the emulator.
5. TEB (Target Emulation Board) hardware and firmware versions: the hardware and firmware versions can be found by opening an STVD7 session, entering the debug context and selecting ***Help>About*** from the main menu. The TEB version numbers are given in the *Target box* – scroll downwards until you find the TEB version (hardware) and TEB PLD version (firmware).
6. Target Device: The sales type of the ST microcontroller you are using in your application.

Revision history

Table 22. Document revision history

Date	Revision	Changes
12-Apr-2006	1	First draft release for review.
17-May-2006	2	Added explanation of schematic version numbers (*Section 4*). Replaced board schematics C.0 with modified schematics C.1. Changes to revision C.1 schematics include: R50 on JTAG connector changed to “Do not fit” (*Figure 22*), STM1001 removed from reset circuit (*Figure 16*).
2-Nov-2007	3	Replaced STR912FW44X6 by STR912FAW47X6 throughout the manual. Document reformatted.

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